NOTE

ONLY THE FOLLOWING PAGES OF THIS

PUBLICATION HAVE BEEN FILMED

Cov. 1, p. 1A-5A, 8A-11A.

Wheat
Good for Life

July 23, 1985

Milling & Baking News

Volume 64 Number 21

Fifty-Five Dollars Per Year

Bakers welcome most tax reform steps

WASHINGTON, July 22. — Baker and allied members of American Bakers Association appear to be willing to give up existing tax benefits, including the investment tax credit and the accelerated cost recovery system, in exchange for an overall reduction in corporate tax rates. That is the principal conclusion from a survey of A.B.A. members on President Reagan's tax reform proposals.

Commenting on the finding in the survey by the Washington accounting firm of Bond, Beebe, Barton & Muckelbauer that members are not in agreement on many provisions in the tax reform package, Robert J. Wager, A.B.A. president, said:

"Our industry is in microcosm what the nation as a whole expresses about tax reform. We all want tax cuts but we're not agreed on how to go about it."

The survey results, Mr. Wager said, will be reviewed at a Sept. 10-11 meeting of A.B.A.'s Executive Committee and board of directors to help formulate the organization's position on tax reform. "Tax reform

(Continued on Page 39.)

COMMENT

The focus is on fiber

"Fiber has become the number one hot topic in food and nutrition today," said a speaker at a recent meeting sponsored by the Institute of Food Technologists's Nutrition Division and the Wheat Industry Council. Certainly fiber received major attention at I.F.T.'s annual meeting, coverage of which continues in this week's issue of *Milling & Baking News*. The proceedings and exposition suggested unlimited potential for development of new high-fiber cereals, baked foods and snacks.

While there have been indications that consumer concern about food product health and nutrition benefits has peaked, or at t is being satisfied by present product offerings, new circumstan e again placed diet and health at the front of the public co ess. In covering President Reagan's unfortunate illness, virtual e major news media gave new attention to long-established sc findings and guidelines about the relationship of diet and cancer.

This new focus on fiber undoubtedly will leave impressions among consumers about its importance. As this translates into increased demand for healthful, high-fiber foods, breadstuffs is in a favored position to meet those needs with present and future products.

On the Inside . . .

General Mills realigns.... 10

Final elements of corporate restructuring at General Mills, most significant since sale of flour mills in 1960's, includes divestiture of operations accounting for more than 25% of sales and assets. Loss for fiscal 1985, first in company's history, reflects charges for redeployments and dispositions.

I.B.C. earnings jump..... 11

In posting sharp turnaround in earnings from continuing operations, Interstate Bakeries has best year since fiscal 1982; Robert W. Hatch sees continued growth in both bread and cake product lines.

Italgrani mill project..... 9

Ground-breaking ceremonies mark construction start of $10 million durum mill at St. Louis by Italgrani USA Inc., company's second in U.S. Mill to have daily milling capacity of 6,800 cwts.

New futures lows..... 15

Continuing long-term trend, wheat futures in Kansas City and Chicago slip to lowest levels in seven years. K.C. contracts decline 5@13½c and Chicago prices topple 7¼@13¼c, with Minneapolis off 4¾@12c. Nearby Chicago July dips below $3 just ahead of expiration.

Late News.....8

MILLING CENSUS REPORT

Pages 1-A — 12-A

Weekly Journal for Breadstuffs Managers

MILLING CENSUS REPORT

Milling & Baking News

FLOUR SERVICE
PENNWALT
CHEMICALS • EQUIPMENT
HEALTH PRODUCTS

Milling growth slows but shipments to new high

A MODERATION IN GROWTH OF VALUE of shipments and value added by manufacture is noted in the final 1982 Census of Manufactures report for the Flour and Other Grain Mill Products Industry (Standard Industrial Classification 2041). At the same time, poundage shipments of wheat flour reached record levels in 1982, and the final report suggests increased stability in the industry with the pace of the downward trend in number of plants unchanged from the previous five-year Census period. The number of plants with 20 or more employes actually increased.

Value of shipments in the Blended and Prepared Flour Industry, S.I.C. 2045, in 1982 was up 40% from 1977, compared with a 44% gain in the previous Census period, and value added in 1982 jumped 49%, well above a 33% gain noted in the 1972-77 period.

(The Flour and Other Grain Mill Products Industry comprises establishments primarily engaged in milling flour or meal from wheat, corn and other grain, except rice. Principal products include wheat flour, prepared mixes and doughs, and corn flour and other corn mill products. The Blended and Prepared Flour Industry is made up of establishments primarily manufacturing prepared flour mixes or doughs from purchased ingredients.)

Value of shipments by plants in the Flour and Other Grain Mill Products Industry in 1982 was up 34% from 1977, while value added by manufacture was up 33%. That compares with gains of 55% and 62%, respectively, noted in the 1977 Census. Value added is considered by the Bureau of the Census to be the best value measure available for comparing industry data from census to census. The 1982 figure is not fully comparable to prior-year data because of changes in instructions for reporting inventories, the Census report shows that on a basis comparable to historical data, value added in 1982 was $1,093.8 million.

The Blended and Prepared Flour Industry, according to the final Census report, had value added of $609.2 million in 1982, up 49% from $408.7 million in 1977. On a basis comparable to historical data, value added in 1982 was $609.6 million. In the 1977 Census, value added in S.I.C. 2045 was up 33% from the previous Census in 1972.

Total value of shipments for establishments classified in the Flour and

New York takes lead .. Page 4-A.
Record in wheat flour Page 4-A.
Bread, biscuit mix up . Page 9-A.
Material, ingredient use Page 11-A.

Other Grain Mill Products Industry totaled $4,932.8 million in 1982, up 34% from $3,683.3 million in 1977. That gain compares with a 55% rise in the 1977 Census and a drop of 3% in value of shipments in the 1972 Census. The value of shipment and value added figures are at prices current for the Census year specified and are not adjusted for inflation.

The final Census report shows that 97% of the value of shipments by the Flour and Other Grain Mill Products Industry in 1982 were of products classified as primary to the industry. This specialization ratio is down slightly from 98% in 1977 but is the same as in 1972 and compares with 93% in 1967.

Of total shipments by establishments 71% in 1977 and compared with 74% in 1972 and 78% in 1967. In the Blended and Prepared Flour Industry, the coverage ratio in 1982 was 58%, compared with 60% in 1977, 65% in 1972 and 63% in 1967.

These low coverage ratios largely reflect the fact that blended and prepared flour are considered primary products in both industries. The final Census report commented as follows on the ratios:

"For 1982, [Flour and Other Grain Mill Products Industry] shipment figures include $1,691.4 million of blended and prepared flour made from purchased flour (primary products of industry 2045). The shipment figures for 1977 and 1972 include $1,204.3 million and $652.6 million, respectively. If confined exclusively to industry 2041, the coverage ratio for 1982, 1977 and 1972 would have been 94, 94 and 95, respectively.

"For 1982 [Blended and Prepared Flour Industry] shipment figures include $382.1 million of blended and prepared flour made in flour mills (primary products of industry 2041). The shipment figures for 1977 and 1972 incude $287.2 million and $143.5 million, respectively. If confined exclusively to industry 2045, the coverage ratios for 1982, 1977 and 1972 would have been 71, 75 and 79, respectively."

Value of shipments by establishments classified in the Blended and Prepared Flour Industry totaled $1,419.1 million in 1982, up from $1,011.7 million in 1977. That 40% gain in 1982 value of shipments compares with a 44% rise in value of shipments in 1977.

The final Census report shows that 1977 and $3,026.7 million in 1972. In S.I.C. 2045, shipments by all producers in 1982 were valued at $2,073.9 million, against $1,491.5 million in 1977 and $796.1 million in 1972.

The Census report shows the Prepared Feeds Industry, Not Elsewhere Classified, S.I.C. 2048, had wheat flour shipments valued at $50.2 million in 1982 and corn mill product shipments valued at $12.5 million. Establishments classified in other industries, it is noted, were responsible for value of shipments of $89.1 million. While the Census does not provide exact shipment figures for these other industries, it notes that three had shipments of more than $5 million — Soybean Oil Mills; Distilled Liquor, Except Brandy; and Flavoring, Extracts and Syrups, Not Elsewhere Classified.

Food Preparations, N.E.C., S.I.C. 2099, shipped $53.8 million of blended and prepared flour products in 1982, according to the final Census report. Other industries with shipments of more than $5 million were Canned Specialties; Shortening and Cooking Oils, and Bread, Cake and Related Products.

Secondary products shipped by establishments in the Flour and Other Grain Mill Products Industry in 1982 included $23.1 million in products primary to Wet Corn Milling, $46.6 million in Prepared Feeds, and $10.6 million in Food Preparations, N.E.C.

Secondary product shipments by establishments in the Blended and Prepared Flour Industry in 1982 included $1.6 million in Canned Fruits and Vegetables and $39.7 million in Food Preparations, N.E.C.

paring relative economic importance of manufacturing among industries and geographic areas. According to the Bureau of the Census, value added is derived "by subtracting the cost of materials, supplies, containers, fuel, purchased electricity and contract work from the value of shipments. The result of this calculation is adjusted by the addition of value added by merchandising operations plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories."

Value added by the Flour and Other Grain Mill Products Industry in 1982 was $1,094.3 million, compared with $824.5 million in 1977. Noting that the in the Flour and Other Grain Mill Products Industry, $4,590.1 million was in primary products, $124.8 million was in secondary products, and $217.9 million was in miscellaneous receipts. Comparable totals for 1977 were $3,461.0 million, $81.1 million and $141.2 million.

"Coverage ratios" in the Flour and Other Grain Mill Products Industry and the Blended and Prepared Flour Industry continued to decline in the 1977-82 period. The coverage ratio is the ratio of primary products shipped by establishments in the industry to the total shipments of such products by all manufacturers wherever classified. This ratio in the Flour and Other Grain Mill Products Industry in 1982 was 70%, down from 93% of the value of shipments by establishments in the Blended and Prepared Flour Industry in 1982 were of products classified as primary to the industry. This specialization ratio compares with 94% in 1977 and only 77% in 1972.

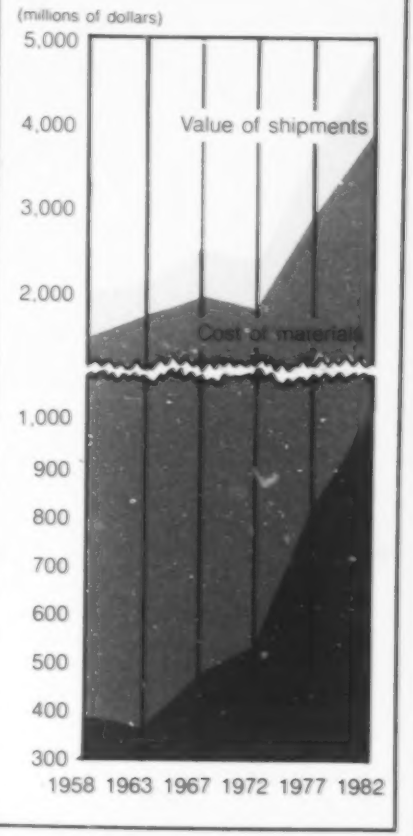
Of total shipments by establishments in the Blended and Prepared Flour Industry, $1,208.8 million was in primary products, $94 million was in secondary products, and $116.1 million was in miscellaneous receipts. Comparable totals for 1977 were $897.8 million, $53.5 million and $60.4 million.

Value of shipments in 1982 of products classified as primary to S.I.C. 2041 by all manufacturers was $6,563 million, compared with $4,882.9 million in

Key operating ratios for milling

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS									
1982 Census	21 391	75	2 123	9.64	78	84	72 470	30	45.22
1981 ASM	19 346	73	2 250	8.22	79	85	70 487	27	42.67
1980 ASM	17 571	73	2 265	7.64	79	85	66 477	27	40.25
1979 ASM	16 809	73	2 250	7.19	78	84	61 601	27	37.40
1978 ASM	16 000	74	2 198	6.91	78	84	55 980	29	34.64
1977 Census	14 250	72	2 177	6.24	77	84	52 853	27	33.52
1976 ASM	12 406	71	2 152	5.54	82	87	42 634	29	27.74
1975 ASM	11 525	73	2 147	5.03	83	88	40 390	29	25.81
1974 ASM	10 649	75	2 162	4.58	87	91	35 006	30	21.68
1973 ASM	9 876	75	2 236	4.17	84	89	34 653	29	20.74
1972 Census	9 491	74	2 261	4.02	79	86	31 665	30	18.95
INDUSTRY 2045, BLENDED AND PREPARED FLOUR									
1982 Census	19 294	71	1 875	9.00	58	68	89 586	22	67.89
1981 ASM	17 658	71	2 111	7.35	62	72	66 737	26	44.49
1980 ASM	16 309	73	2 000	6.98	61	71	62 420	26	42.85
1979 ASM	15 000	71	2 246	6.09	63	74	50 686	30	31.82
1978 ASM	13 833	70	2 111	6.00	66	77	41 900	33	28.35
1977 Census	12 440	69	2 096	5.62	60	70	48 655	26	33.78
1976 ASM	12 780	68	2 179	5.82	61	70	53 756	24	36.13
1975 ASM	12 061	73	2 100	5.37	61	70	52 646	23	34.26
1974 ASM	10 795	74	2 052	4.92	66	74	45 167	24	29.61
1973 ASM	10 247	74	2 250	4.37	62	72	37 963	27	22.78
1972 Census	9 491	72	2 158	4.33	57	68	38 835	24	24.94

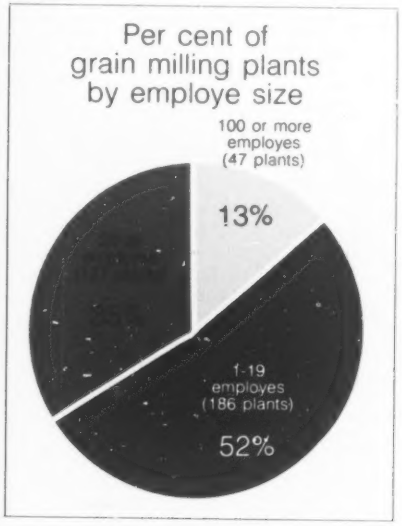
Value of shipments, cost of materials and value added by manufacture, S.I.C. 2041 Flour and Other Grain Mill Products



New York takes lead in wheat flour shipments

CONTINUING SHIFTS IN THE RANKING of states in shipments of the leading category, "wheat flour products, except mixes," are reflected in the 1982 Census of Manufactures for the Flour and Other Grain Mill Products Industry. New York in 1982 replaced Minnesota as the leading state in value of shipments of the principal product category. Minnesota had taken over that spot from Kansas in the 1977 Census tabulations.

New York, which ranked third in 1977 shipments, jumped into first place in 1982 with value of shipments of wheat flour products, except mixes, reaching $326.7 million, up 33% from $246.1 million in 1977. The state ranked third in shipments of "wheat mill products other than flour," which includes millfeed, wheat germ and wheat mill products other than flour, not specified by kind. Value of shipments in this category was $41.5 million, down from $44.7 million in 1977. New York was one of four states that in 1982 countered the long-term downward trend in plant numbers. It had 17 plants in the Flour and Other Grain Mill Products Industry, compared with 15 in 1977.



Minnesota in 1982 ranked second in value of shipments of both wheat flour products, except mixes, ($324.3 million, up 25% from 1977) and of wheat mill products other than flour ($46.7 million, up 5%). Minnesota in 1982 had 23 plants in the Flour and Other Grain Mill Products Industry, one more than in 1977.

Kansas in 1982 was third in value of shipments of wheat flour products, except mixes ($320.2 million, up 23%) and retained its first-place ranking in shipments of wheat mill products other than flour ($50.7 million, down 6% from 1977). Kansas in 1982 had 24 plants, two fewer than in 1977.

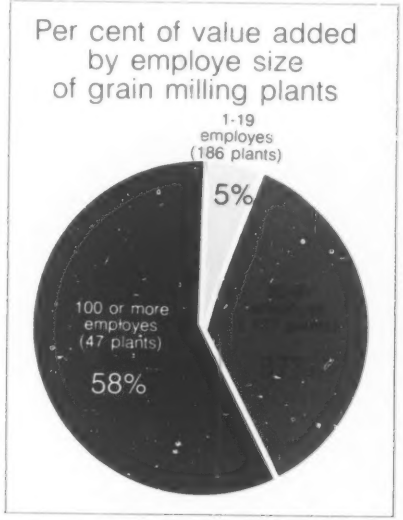
California, with 1982 value of shipments of wheat flour products, except mixes, at $211.4 million, up 59% from 1977, moved into fourth place. It was fifth in wheat products other than flour with value of shipments of $28.2 million. California led all states in plant number gains, with 19 plants in 1982, four more than in 1977.

The Census shows a total of 360 establishments in the Flour and Other Grain Mill Products Industry in 1982, compared with 407 in 1977, 457 in 1972 and 541 in 1967. All of the decrease in plant numbers in the 1977-82 period occurred in establishments with fewer than 20 employes. There were 186 plants in this category in 1982, compared with 234 in 1977. In contrast, there were 127 plants with 20 to 99 employes in 1982, up from 126 in 1977. And the number of plants with 100 or more employes held constant at 47.

Those 47 plants with 100 or more employes, while representing only 13% of total establishments, accounted for 58% of total value added by manufacture in the Flour and Other Grain Mill Products Industry. These plants also accounted for 50% of value of shipments, 48% of the cost of all materials and ingredients purchased and 49% of new capital expenditures.

There were 111 plants in the Blended and Prepared Flour Industry in 1982, down from 137 in both 1977 and 1972.

Of the total, 55 had 20 or more employes. The 24 plants with 100 or more employes, 21% of the total, accounted for 80% of value added by manufacture and 77% of value of shipments.



Flour mill product shipments to record high

SHARP GAINS IN BAKERS' AND INSTITUTIONAL soft wheat flour, in family flour and in white flour for blenders and other processors paced shipments of wheat flour to record levels in 1982, according to the final Census of Manufactures report. Inclusion of figures for major product shipment categories results in an "unofficial" 1982 aggregate for all domestic shipments of wheat flour, except flour mixes, of 274,083,500 cwts. That is up 11,494,900 cwts, or 4%, from the 1977 figure.

The Department of Agriculture on wheat flour supply and utilization placed domestic disappearance of wheat flour in 1982 at 277,704,000 cwts, which was a record until the 1984 disappearance of 278,743,000. (The Census and U.S.D.A.

product category — bakers' and institutional white bread-type flour — totaled 139,934,800 cwts in 1982, off from 145,781,700 cwts in 1977. That 4% decrease is in marked contrast to the previous five-year period, when 1977 ship-

INTENTIONAL
BLANK

port for the Flour and Other Grain Mill Products Industry.

While the Bureau of the Census in its report for the Flour and Other Grain Mill Products Industry does not provide an "official" total for shipments of all wheat flour as it has in past years, addi-

total of 262,588,600 cwts, also derived from addition of individual shipment totals. The 1982 shipment aggregate of 274,083,500 cwts compares with the 1972 total of 251,589,000 cwts and the 1967 aggregate of 245,703,000 cwts.

Compilations by the U.S. Depart-

aggregates are not fully comparable in that the Census reflects shipments while the U.S.D.A. numbers are based on production. In addition, the Census includes bulgur while the Agriculture compilations do not.)

Shipmeats of the largest wheat flour

Historical statistics for S.I.C. 2041, 2045

Year[a]	Com-parable[b] (no.)	All establishments[c]		All employers		Production workers			Value added by manufac-ture[d] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend-itures (million dollars)	End-of-year inven-tories[e] (million dollars)	Ratios	
		Total (no.)	With 20 employ-ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Spe-cial-ization (per-cent)	Cover-age (per-cent)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS															
1982 Census	251	360	174	15.1	323.0	11.4	24.2	233.3	1 094.3	3 925.5	4 932.8	90.6	361.3	97	70
1981 ASM	(NA)	(NA)	(NA)	15.8	305.7	11.9	26.1	214.6	1 113.7	4 189.1	5 313.6	67.3	362.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.5	273.9	11.3	25.6	195.7	1 030.4	3 619.8	4 635.4	53.3	439.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	255.5	11.2	25.2	181.3	942.5	3 291.2	4 218.3	66.4	402.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	241.6	11.1	24.4	168.5	845.3	2 934.3	3 760.9	56.5	303.6	(NA)	(NA)
1977 Census	300	407	173	15.6	222.3	11.3	24.6	153.4	824.5	2 854.2	3 683.3	52.4	263.2	93	71
1976 ASM	(NA)	(NA)	(NA)	17.5	217.1	12.5	26.9	149.0	748.1	3 343.9	4 095.9	53.6	303.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	17.7	204.0	12.9	27.7	139.3	714.9	3 569.5	4 327.6	45.8	326.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	17.4	195.3	13.0	28.1	128.7	909.1	3 902.1	4 502.2	44.0	361.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	17.0	167.9	12.7	28.4	116.5	589.1	2 765.7	3 328.3	29.8	375.7	(NA)	(NA)
1972 Census	340	457	181	16.1	152.6	11.9	26.9	108.1	509.8	1 985.2	2 380.0	30.0	211.3	97	74
1971 ASM	(NA)	(NA)	(NA)	16.0	160.9	13.2	29.2	111.9	529.7	1 920.7	2 451.0	24.8	166.0	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	16.0	161.7	13.7	30.6	109.8	535.1	1 936.1	2 436.3	36.3	166.5	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	20.0	155.9	14.5	32.4	105.4	487.3	1 884.1	2 357.0	31.1	161.1	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	19.9	147.3	14.4	32.4	99.7	466.6	1 866.0	2 363.4	26.1	168.1	(NA)	(NA)
1967 Census	438	541	213	20.5	142.9	14.8	33.2	95.5	491.3	1 865.0	2 457.4	26.3	162.4	93	70
INDUSTRY 2045, BLENDED AND PREPARED FLOUR															
1982 Census	91	111	55	6.8	131.2	4.8	9.0	81.0	609.2	829.3	1 419.1	28.7	114.4	83	50
1981 ASM	(NA)	(NA)	(NA)	7.6	134.2	5.4	11.4	83.8	507.2	933.6	1 347.9	21.4	81.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.1	132.1	5.9	11.8	82.4	505.6	787.2	1 269.1	24.0	95.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.6	129.0	6.1	13.7	83.4	435.9	743.2	1 172.4	[d]22.7	91.0	(NA)	(NA)
1978 ASM[f]	(NA)	(NA)	(NA)	9.0	122.7	6.3	13.3	79.8	377.1	721.1	1 097.2	25.5	87.4	(NA)	(NA)
1977 Census	111	137	60	8.4	104.5	5.8	12.1	68.0	408.7	836.3	1 011.7	17.6	80.6	94	60
1976 ASM	(NA)	(NA)	(NA)	8.2	104.8	5.6	12.2	71.0	440.8	674.2	1 105.2	18.3	85.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	8.2	98.9	6.0	12.6	67.7	431.7	699.4	1 139.1	19.4	76.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	7.8	94.2	5.8	11.9	58.6	352.3	654.8	986.8	13.2	74.6	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	8.1	83.0	6.0	13.5	59.0	307.5	494.0	785.7	14.0	58.0	(NA)	(NA)
1972 Census	115	137	57	7.9	74.9	5.7	12.3	53.2	306.8	461.7	704.6	13.7	47.6	77	65
1971 ASM	(NA)	(NA)	(NA)	8.3	58.5	4.7	9.4	40.9	253.2	330.7	574.0	9.3	36.8	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	7.2	59.4	5.2	10.4	40.3	262.0	319.9	581.6	14.1	36.9	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	7.7	60.7	5.6	11.6	39.3	275.5	335.3	605.6	[d]12.2	44.9	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	7.4	58.1	5.4	11.3	38.3	229.6	322.6	550.3	10.3	39.5	(NA)	(NA)
1967 Census	126	148	66	7.5	56.0	5.5	11.3	35.4	233.1	314.9	547.5	10.5	37.5	76	65

[a] In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete census of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the industry chapter.

[b] For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[c] Includes establishments with payroll at any time during year.

[d] Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications.

ments were up 23% from 118,710,000 in 1972.

Shipments of bakers' and institutional white bread-type flour in 1967 totaled 111,779,000 cwts.

Bulk shipments show gain

While overall shipments of bakers' and institutional white bread-type flour in 1982 were down from 1977, bulk shipments increased. Shipments in bulk cars or trucks in 1982 totaled 120,204,-900 cwts, up 2% from 117,919,700 cwts in 1977 and compared with 87,-116,000 cwts in 1972.

Shipments of bakers' and institutional white bread-type flour in containers, including tote bins, totaled 19,729,900 cwts in 1982, down 29% from 27,862,-000 in 1977 and compared with 31,-594,000 in 1972.

Soft wheat flour up sharply

In contrast to the increase of only 2% in bulk shipments of bakers' and institutional white bread-type flour, bulk shipments of bakers' and institutional soft wheat flour in 1982 were 33% above 1977. All soft wheat flour in 1982 totaled 57,913,800 cwts, up 14,315,800 cwts from 43,598,000 cwts in 1977. As in the case of white flour, shipments of soft wheat flour in containers in 1982 were down from 1977.

Larger share for soft flour

In 1982, white flour represented 71% of total shipments of bakers' and institutional flour (197,848,600) while soft wheat flour accounted for 29% of the total. Those percentages contrast to the 1977 shares of 77% and 23%, but are identical to the percentage shares prevailing in the 1972 Census.

Census of Manufactures reports for the 43 major industries making up the

Food and Kindred Products Industry, Standard Industrial Group 20, details wheat flour usage that accounts for 78% of the total domestic shipments of wheat flour in 1982 by the Flour and Other Grain Mill Products Industry for food use. (This shipment aggregate, of 217,933,100 cwts, includes bakers' and institutional white and soft wheat flour, flour shipped to blenders or other food processors and whole wheat flour. It excludes family flour, durum flour and semolina, bulgur and other wheat flour, including farina.) The remaining 22% was used in industries for which Census reports do not detail flour usage or in industries for which reports are not issued, including pizza operations and retail and supermarket in-store baking.

Major wheat flour users

The following table shows wheat flour usage by major food industries in 1982, with percentages of the total wheat flour shipments by the Flour and Other Grain Mill Products Industry:

Industry, S.I.C. Number	Usage (cwts)	Per cent of total
Bread and Cake, 2051	100,062,000	46
Cookie, Cracker 2052	30,158,000	14
Blended, Prep. Flour 2045	12,163,200	6
Frozen Specialties 2038	8,264,300	4
Grain Mill Products 2041	8,017,500	4
Cereal Breakfast Foods 2043	3,577,300	2
Prepared Feeds 2048	3,380,000	1
Pet Foods 2047	3,110,400	1
Macaroni, Spaghetti 2098	1,619,300	1
Total identified uses	170,352,000	78

In addition to 1,619,300 cwts of wheat flour, the Macaroni and Spaghetti Industry in 1982 used 15,450,100 cwts of semolina and durum flour. The Census report for Flour and Other Grain Mill Products places 1982 shipments of durum flour and semolina at 17,676,500 cwts, down from 18,359,800 cwts in 1977 and compared with 15,670,000 cwts in 1972.

According to the final Census report,

Flour, Other Grain Mill Products shipments

Includes quantity and value of products of this industry produced by (1) establishments classified in the industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included.

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	FLOUR AND OTHER GRAIN MILL PRODUCTS						
2041-- pt. 2048-- pt.	Total	(568)	(D)	6 863.0	(NA)	(X)	4 982.9
	Made chiefly from flour milled in same establishment	(551)	(D)	4 871.2	(NA)	(X)	3 678.8
	Made chiefly from purchased flour	(545)	(D)	1 991.8	(NA)	(X)	1 304.3
20x11 --	Wheat flour, except flour mixes[3]	(NA)	(D)	3 102.3	(NA)	(X)	2 208.9
	White flour:						
	Shipped for export:						
20x11 05	Commercial baker exports, all white flour types (1,000 cwts (cwt))	13	4 827.3	43.6	15	11 963.5	90.4
20x11 07	All other exports of white flour, such as those under Public Law 480 (D)	9	9 191.2	94.5	7	7 581.1	51.8
	Domestic shipments:						
	Bakers' and institutional white bread-type flour:						
20x11 11	Shipped in bulk cars or trucks (D)	83	120 254.0	1 231.3	28	117 919.7	886.9
20x11 13	Shipped in containers, including tote bins (D)	18	19 739.0	239.6	22	27 862.0	224.3
	Bakers' and institutional soft wheat flour, including commercial bakery, restaurant, hospital, etc.:						
20x11 15	Shipped in bulk cars or trucks (D)	33	52 742.0	498.2	31	36 195.5	230.9
20x11 17	Shipped in containers, including tote bins (D)	13	5 171.0	56.6	23	7 402.2	54.5
	Family white flour:						
	All family flour other than self-rising, such as phosphated, plain, bromated enriched, and all-purpose, including all-purpose purchased by the U.S. Government for domestic donation:						
20x11 21	Shipped in containers of less than 25 lb (D)	21	(D) 980.0	311.7	26	12 180.4	131.2
20x11 23	Shipped in containers of 25 lb. or more (D)	17	5 010.2	48.8	30	7 586.4	62.8
	Self-rising flour:						
20x11 25	Shipped in containers of less than 25 lb (D)	21	4 280.4	78.3	21	5 290.3	62.3
20x11 23	Shipped in containers of 25 lb. or more (D)	6	691.0	6.4	19	1 083.1	10.8
	Flour shipped to blenders or other processors (for further processing and/or packing before resale or shipment):						
20x11 29	For use in food products (mixes, refrigerated doughs, wraps, etc.) (D)	18	17 017.5	183.2	(NA)	11 998.9	98.2
20x11 35	For use in nonfood products (pet food, industrial, etc.) (D)	10	3 514.5	15.7	11	3 754.1	30.8
	Other than white flour:						
20x11 31	Whole wheat (D)	17	2 470.0	27.8	17	2 809.3	24.5
20x11 51	Durum flour and semolina[4] (D)	0	17 674....	192.9	8	18 358.8	145.2
20x11 61	Bulgur (D)	5	5 171.2	48.4	5	6 882.4	50.8
20x11 65	Other wheat flour, including farina (D)	11	1 486.2	19.0	10	3 261.5	24.3
20x11 69	Wheat flour, except flour mixes, n.s.k.	(NA)	(D)	16.3	(NA)	(X)	40.8
20x12 --	Wheat mill products other than flour	(NA)	(D)	478.5	(NA)	(X)	456.4
20x12 13	Wheat mill feed[5] (1,000 s tons)	(x)	3 191.0	458.9	85	4 962.4	433.5
20x12 17	Wheat germ (D)	6	39.0	6.4	16	73.8	18.4
20x12 69	Wheat mill products other than flour, n.s.k.	(NA)	(D)	13.2	(NA)	(X)	3.5
20x15 -- 20x9- --	Flour mixes and refrigerated doughs[6]	(NA)	(D)	2 073.9	(NA)	(X)	1 491.5
20x19 --	Other grain mill products	(NA)	(D)	185.6	(NA)	(X)	98.3
20x19 11	Rye flour[7] (1,000 cwts (cwt))	6	1 484.0	16.6	7	1 709.5	12.0
20x19 23	Other flour (excluding wheat, corn, and rye) (D)	9	3 655.0	44.9	11	3 210.3	29.8
20x19 27	Other mill feed (oats, rye, buckwheat, etc.) (1,000 s tons)	10	613.6	101.7	8	883.2	58.5

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "000". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

Corn mill products are excluded.

*Data reported by all producers, not just those with shipments of $100,000 or more.

**For some establishments, data have been estimated from control unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

†Detailed monthly production for flour milling products is published in CIR M26A, Flour Milling Products. The 1982 production for Product Codes 20411, Wheat Flour, is 297,886 1,000 sacks (cwt); 20412 13, Wheat Mill Feed, is 5,363 1,000 short tons; 20416 11, Rye Flour, is 1,447 1,000 sacks (cwt); and 20411 51, Durum Flour and Semolina, is 17,472 1,000 sacks (cwt). These data are not comparable to the data in this report since the census shows shipments, while the CIR shows production.

‡For product detail, see Industry 2045, Blended and Prepared Flour.

1982 shipments of white flour to blenders or other food processors totaled 17,618,600 cwts, up 47% from 11,998,900 cwts in 1977. These usages include mixes, refrigerated doughs and soups. Shipments of white flour for use in non-food products in 1982 amounted to 3,549,500 cwts, down slightly from 3,754,100 cwts in 1977.

Family flour up 18%

Shipments of family flour in 1982, according to the Census report for the Flour and Other Grain Mill Products Industry, totaled 23,380,000 cwts, up 18% from 19,746,800 in 1977 and compared with 19,812,000 in 1972. The totals include all-purpose flour purchased by the federal government for domestic donation.

The report places 1982 shipments of family flour in containers of less than 25 lbs at 20,360,800 cwts, a 67% jump from 12,160,400 cwts in 1977 and also above 13,958,000 cwts in 1972. Shipments of family flour in containers of 25 lbs or more totaled 3,019,200 cwts in 1982, down from 7,586,400 cwts in 1977 and compared with 5,854,000 cwts in 1972.

Shipments of self-rising flour in 1982 aggregated 4,884,000 cwts, down 24% from 6,386,400 cwts in 1977 and also below 5,895,000 cwts in 1972. The 1982 total includes 4,382,400 cwts in containers of less than 25 lbs and only 501,600 cwts in containers of more than 25 lbs, compared with 5,293,300 cwts and 1,093,100 cwts, respectively, in 1977.

Flour for export off

Shipments of white flour for export in 1982 totaled 13,518,500 cwts, down 31% from 19,544,600 cwts in 1977, which in turn was off 11% from 22,053,000 cwts in 1972.

The 1982 export total included 4,327,300 cwts as commercial dollar sales, off 64% from 11,963,500 in 1977. At the same time, all other exports, primarily under the P.L. 480 program, totaled 9,191,200 cwts in 1982, up 21% from 7,581,000 in 1977.

The final Census report places shipments of wheat millfeed in 1982 at 5,061,900 tons, up slightly from 4,952,400 tons in 1977 and compared with 4,249,000 tons in 1972. Shipments of wheat germ continued to fall, with the 1982 total shown as 28,600 tons, down sharply from 73,800 tons in 1977 and 111,000 tons in 1972.

Bread, bread-type rolls pace gains in mixes

SHIPMENTS OF BREAD AND BREAD-type roll mixes and biscuit mixes reached record levels in 1982, according to the final Census of Manufactures report for the Blended and Prepared Flour Industry, S.I.C. 2045.

Shipments of bread and bread-type roll mixes by all establishments — those classified in the Blended and Prepared Flour Industry as well as in other industries — in 1982 were 94% above the 1977 levels. On the strength of that gain, bread and bread-type roll mixes became the second-largest mix category in poundage shipments behind cake mixes, the long-time leader.

Shipments of bread and bread-type roll mixes in 1982 aggregated 5,535,500 cwts, compared with 2,850,000 cwts in 1977 and 4,059,000 cwts in 1972. Thus, the increase in 1982 shipments reversed a downward trend noted in the 1977 Cenus.

Paced by smaller containers

Pacing the 2,685,500-cwt increase in bread and bread-type roll mixes were shipments in containers of less than 5 lbs, which totaled 3,092,600 cwts in 1982, an increase of 248% from 889,400 cwts in 1977. Shipments in containers of 5 lbs or more aggregated 2,442,900 cwts in 1982, against 1,960,600 cwts in 1977.

Mixes in containers of 5 lbs or more are largely for institutional use; those in smaller containers are for consumer use.

Shipments of biscuit mixes in 1982, reflecting the growing popularity of that product in food service as well as at-home meals, totaled 1,779,100 cwts, up 23% from 1,446,100 cwts in 1977. The 333,000-cwt gain in biscuit mix shipments in the 1977-82 period followed an increase of 782,100 cwts, or 118%, in 1977 from the 1972 aggregate, which reversed an earlier downward trend in biscuit mix business. The 1982 aggregate of 1,779,100 also exceeds the previous record of 1,709,000 cwts in 1958.

Contrast in biscuit gains

Most of the gain in biscuit mix shipments in 1982 was in smaller containers, according to the Census report. Shipments in containers of less than 5 lbs totaled 1,045,200 cwts, compared with 725,800 cwts in 1977 and 578,000 cwts in 1972. Shipments in containers of more than 5 lbs totaled 733,900 cwts, up slightly from 720,300 cwts in 1977 and compared with only 86,000 cwts in 1972.

While cake mixes continued as the poundage leader in mix shipments, poundage in 1982 at 8,710,600 cwts was down 8% from 9,511,600 cwts in 1977. Shipments in 1982 still were above the 1972 total of 7,445,000 cwts. But the 801,000-cwt decrease in 1982 was in marked contrast to an increase of 2,066,600 cwts, or 27%, in the 1972-77 inter-Censual period.

Shipments of cake mixes in containers of less than 5 lbs totaled 7,562,800 cwts in 1982, down from 8,256,400 cwts in 1977 and compared with 5,656,000 cwts in 1972. Shipments of cake mixes in containers of 5 lbs or more aggregated 1,147,800 cwts in 1982,

compared with 1,255,200 in 1977 and 1,789,000 cwts in 1972.

Pancake and waffle mixes, the second-ranking mix category in the 1977 Census, slipped to third in total poundage in 1982. Shipments of pancake and waffle mixes in 1982 totaled 4,348,300 cwts, down 24% from 5,696,700 cwts in 1977. The decrease contrasts with an increase of 119% recorded in the 1972-77 period. Pancake and waffle mix shipments in 1972 were 2,600,000 cwts. The decrease in pancake and waffle mix poundage in 1982 was primarily in shipments in containers of 5 lbs or more, which fell 1,120,500 cwts, or 54%, from 1977. Shipments in containers of 5 lbs or less in 1982 decreased 227,900 cwts, or 6%, from 1977.

Shipment figures for other mix categories in the 1982 Census are not fully comparable to 1977 because of changes in product classifications.

The Census report discloses shipment figures for only one refrigerated dough category — "other doughs, including pizza, coffee cake, pancake mix, cookie dough, etc." Shipments totaled 1,291,000 cwts, with no comparison for 1977.

Despite the marked changes in product shipment totals, little variation was observed in shares of value of shipments between 1982 and 1977. Cake mixes again accounted for the largest value of shipments at $604.1 million, which was 29% of the total for the Blended and Prepared Flour Industry. That percentage is unchanged from 1977, when cake mix shipments were valued at $435.3 million.

Even with a 94% increase in poundage, shipments of bread and bread-type roll mixes in 1982 accounted for only 6% of the total value of shipments, or $117 million, compared with a 5% share, or $72.6 million, in 1977. Pan-

Blended, Prepared Flour shipments

Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included.

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	BLENDED AND PREPARED FLOUR						
20415 — 20450 —	Total	(NA)	(X)	2 673.9	(NA)	(X)	1 491.5
	Made chiefly from flour milled in same establishment	(NA)	(X)	382.1	(NA)	(X)	287.2
	Made chiefly from purchased flour	(NA)	(X)	1 881.8	(NA)	(X)	1 204.3
	Flour mixes:						
	Pancake and waffle mixes:						
20415 51 20450 51	Shipped in containers of less than 5 lb (1,000 sacks (cwt))	(NA)	3 360.4	152.3	16	3 608.3	103.5
20415 52 20450 52	Shipped in containers of 5 lb or more (do.)	(NA)	987.9	23.1	15	2 088.4	28.9
	Cake mixes, including gingerbread:						
20415 53 20450 53	Shipped in containers of less than 5 lb (do.)	(NA)	7 562.8	549.3	15	8 256.4	405.6
20415 54 20450 54	Shipped in containers of 5 lb or more (do.)	(NA)	**1 147.8	54.8	12	1 255.2	29.7
	Biscuit mixes:						
20415 56 20450 56	Shipped in containers of less than 5 lb (do.)	(NA)	1 045.2	27.5	10	725.8	25.7
20415 57 20450 57	Shipped in containers of 5 lb or more (do.)	(NA)	*733.9	27.5	8	720.3	14.9
20415 60 20450 60	Pie crust mixes (do.)	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 63 20450 63	Doughnuts and other sweet yeast goods mixes (do.)	(NA)	4 717.1	150.6	(NA)	(3)	(3)
	Bread and bread-type rolls mixes:						
20415 66 20450 66	Shipped in containers of less than 5 lb (do.)	(NA)	3 082.6	58.5	8	889.4	30.2
20415 67 20450 67	Shipped in containers of 5 lb or more (do.)	(NA)	2 442.9	58.5	17	1 980.6	42.4
	Other prepared flour mixes, including cookie mixes:						
20415 72 20450 72	Shipped in containers of less than 5 lb (do.)	(NA)	*5 325.1	318.1	(NA)	(3)	(3)
20415 74 20450 74	Shipped in containers of 5 lb or more (do.)	(NA)	4 304.1	109.1	(NA)	[4]17 460.0	[4]411.8
	Refrigerated doughs:						
20415 81 20450 81	Biscuit dough (mil lb net wt.)	4	(D)	(D)	3	581.8	155.8
20415 85 20450 85	Bread and bread-type roll dough, including dinner (do.)	5	(D)	(D)	3	95.6	45.7
20415 87 20450 87	Other doughs, including pizza, coffee cake, pancake mix, cookie dough, etc. (do.)	(NA)	129.1	75.8	(NA)	(D)	(D)

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[3]For 1977, data for product codes 20415 63, 20450 63, 20415 72, and 20450 72 were included with product codes 20415 74 and 20450 74.

cake and waffle mix shipments in 1982 were valued at $175.4 million, or 9% of the industry total, the same as in 1977. Value of biscuit mix shipments in 1982 was $55 million, or 3% of the total, also unchanged from 1977.

Cost of all materials reaches $4.3 billion

DELIVERED COST OF ALL MATERIALS, ingredients, containers and supplies used by establishments in the Flour and Other Grain Mill Products Industry and the Blended and Prepared Flour Industry in 1982 aggregated $4,322.3 million, up 33% from $3,258.3 million in 1977. For milling, these costs in 1982 were up 32% from 1977; in Blended and Prepared Flour, total costs in 1982 were up 34% from 1977.

Establishments in the Flour and Other Grain Mill Products Industry in 1982 used 652.2 million bus of wheat, up 8% from 605.2 million bus in 1977. With a delivered cost of $2,655.8 million, or $4.07 per bu, wheat accounted for 74% of the cost of all materials, ingredients, containers and supplies used by S.I.C. 2041 in 1982. Delivered cost of wheat in 1977 was $1,845.1 million, or $3.04 per bu, representing 68% of the total.

Utilization of wheat flour by establishments in the Flour and Other Grain Mill Products Industry in 1982 totaled 8,017,500 cwts, down 16% from 9,588,200 cwts in 1977 but above 7,726,200 cwts in 1972. Blended and Prepared Flour Industry establishments used 12,163,200 cwts of wheat flour in 1982, down 10% from 13,506,900 cwts in 1977 but up from 11,931,200 in 1972. The latter plants also used 2,906,000 cwts of non-wheat flour and prepared flour mixes, up 53% from 1,901,400 cwts in 1977.

Establishments in S.I.C. 2041 used 91,500 tons of sugar (cane and beet) in 1982, up 30% from 70,200 tons in 1977. Usage also increased in S.I.C. 2045. These plants used 255,600 tons of sugar in 1982, up 26% from 203,200 tons in 1977.

Mills consumed 77.4 million lbs of fats and oils for use in flour and prepared flour mixes in 1982, up 38% from 56 million lbs in 1977. Blended and Prepared Flour establishments used 207.1 million lbs of fats and oils in 1982, up 6% from 196.1 million in 1977. Flour and Other Grain Mill Products plants used 60.6 million textile bags (including burlap, cotton and polypropylene) in 1982, up 8% from 1977.

Ingredients, materials consumed

Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry.

1982 material code	Material	1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS				
	Materials, ingredients, containers, and supplies	(X)	**3 585.6**	(X)	**2 767.4**
011111	Wheat ... mil bushels	652.2	2 655.8	605.2	1 845.1
011521	Corn ... do	99.2	198.4	83.4	188.5
011931	Oats ... do	(D)	(D)	19.5	32.3
011913	Barley ... do	1.3	3.8	5.3	6.8
011961	Sorghum grain ... do	(D)	(D)	5.4	11.3
204110	Wheat flour ... 1,000 cwt	8 017.5	84.9	9 588.2	89.9
206011	Sugar (cane and beet) in terms of sugar solids ... 1,000 s tons	91.5	44.1	70.2	22.0
207003	Fats and oils for use in flour and prepared flour mixes ... mil lb	77.4	25.5	56.0	16.3
239303	Textile bags (including burlap, cotton, polypropylene, etc.) ... mil bags	**60.6	16.8	56.0	17.2
264338	Paper shipping sacks ... 1,000 s tons	(S)	39.2	(*)	45.6
265001	Paperboard boxes and containers	(X)	27.0	(X)	8.0
970099	All other materials and components, parts, containers, and supplies	(X)	286.9	(X)	168.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	151.2	(X)	275.9
	INDUSTRY 2045, BLENDED AND PREPARED FLOUR				
	Materials, ingredients, containers, and supplies	(X)	**738.7**	(X)	**550.9**
204001	Flour (other than wheat) and prepared flour mixes ... 1,000 cwt	2 906.0	37.3	1 901.4	23.1
011111	Wheat ... mil bushels	-	-	(NA)	(*)
204110	Wheat flour ... 1,000 cwt	12 163.2	132.7	13 506.9	106.9
206011	Sugar (cane and beet) ... 1,000 s tons	255.6	115.2	203.2	65.9
207003	Fats and oils for use in flour and prepared flour mixes ... mil lb	207.1	64.7	196.1	50.5
190003	Flexible packaging materials	(X)	15.5	(X)	(*)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	97.2	(X)	[4]60.0
970099	All other materials and components, parts, containers, and supplies	(X)	210.8	(X)	[4]142.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	63.2	(X)	82.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1977, unit of measure for material code 264338 was thousand sacks.

[4]For 1977, data for material code 011111 were included with data for material code 970099.

[5]For 1977, material codes 190003 and 265001 were collected and reported as material code 970015, Paper containers and converted flexible packaging materials (including drums, fiber cans, cartons, liner materials, etc.).

C8450-1-U

June 25, 1985

Wheat Good for Life

Milling & Baking News

Volume 64 Number 17

Fifty-Five Dollars Per Year

Jorge Born details Bunge philosophy

NEW YORK, June 24. — In the global grain and grain processing business, each of the major companies brings a different style, culture and business philosophy to the current difficult economic environment. Yet, if one company may be described as "more different" from its peers, that description would probably best be applied to the Bunge Group. Based on an interview recently in New York with

SPECIAL INTERVIEW
by the editors of
Milling & Baking News

Jorge Born, managing director of this huge globe-circling enterprise, an observer could conclude that the Bunge Group has pursued a course in recent years that has positioned it better to grow and prosper under present-day conditions than many, if not most, of its competitors.

And, while Mr. Born acknowledged the

(Continued on Page 39.)

COMMENT

Census details baking changes

One of the breadstuffs industry's most important documents of this decade, the 1982 Census of Manufactures for the Bread, Cake and Related Products Industry, is analyzed and interpreted in a 24-page special section in this issue of *Milling & Baking News*.

The comprehensive analysis is meant to be an invaluable management and planning tool to help baking executives judge the performance of their companies in comparison with the industry during the volatile 1977-82 period. Bakers may also project the impact of these industry changes and trends into the difficult years ahead. The report offers fascinating insights into the evolution of the industry — its production gains, which segments modernized the most, the number and size of bakeries as consolidation continued, trends and even reversals in the mix of products, value added to those products, pricing, and diversification into secondary products.

This is the first of several analyses of the just-issued Census of Manufactures for baking and milling that are planned for publication this summer. Breadstuffs managers should want to devote considerable thought to each of these, describing the past and looking to the future.

On the Inside . . .

New flour usage peak..... 9

Total consumption of wheat flour in U.S. in calendar 1984 totaled record 278.7 million cwts, according to Economic Research Service, up 3% from previous year. Per capita consumption reaches 118 lbs, compared with 116 lbs in 1983.

Baking co-op merger?. 102

Officers and staff executives of three cooperatives cite advantages and disadvantages in mutual assistance efforts or merger; emphasize issue has been discussed for many years without action.

Soybean oil easy 17

Confirmation of two cargoes en route from Argentina to the U.S. and expectations of imports from Brazil contribute to continued weakness in soybean oil prices. Imports hardly significant for supply and demand balance but provide "negative psychological effects."

Late News.....112

Begins on Page 69

BAKING CENSUS REPORT

Weekly Journal for Breadstuffs Managers

Pages 1-A — 24-A

BAKING CENSUS REPORT

Milling & Baking News

Busch Industrial Products Corporation

ONE OF THE ANHEUSER-BUSCH COMPANIES

Stability marks bread and cake baking

A continuation of many long-time trends in the baking business; establishment of new directions and outright reversals of other patterns are all reflected in the 1982 Census of Manufactures for the Bread, Cake and Related Products Industry. While the five years between 1977 and 1982 witnessed many changes in size, structure, products and ingredients, in comparison to the 1972-77 Census period, the latest intercensual period also was one of relative stability for the larger wholesale plants. These plants continue as the nucleus of wholesale baking as well as of the Bread, Cake and Related Products Industry.

Stability is underscored in the 1982 Census findings of increased share of market for the larger wholesale plants, little change in their numbers, and a poundage production gain of almost 3% for the overall Bread, Cake and Related Products Industry.

Total value of shipments for 2,305 establishments classified in the Bread, Cake and Related Products Industry in 1982 was $13,143.3 million, up 42% from $9,274.9 million in 1977 and more than double the 1972 total of $6,152.6 million. The value of shipments figure includes products classified as primary to the industry, products designated as secondary to the industry, and miscellaneous receipts, including resales.

Value of shipment figures are at prices current for the year specified and are not adjusted for changes in price levels. When adjusted for relative inflation, the 42% gain in value of 1982 shipments over 1977 is not that much less, if at all, than the 51% gain in 1977 over 1972. During the 1972-77 period, manufacturing among geographic areas," again increased at a greater rate than value of shipments. Value added in the Bread, Cake and Related Products Industry in 1982 amounted to $7,861.1 million, up 46% from $5,370.4 million in 1977. The 1977 total, in turn, was up 53% from $3,518.1 million in 1972.

According to the Bureau of the Census, value added is derived "by subtracting the cost of materials, supplies, containers, fuel, purchased electricity and contract work from the value of shipments. The result of this calculation is adjusted by the addition of value added by merchandising operations plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories."

Although the Bureau cautions in its final reports that value added for 1982 is not strictly comparable to prior-year data because of a change in instructions for reporting inventories for 1982, value added figures estimated by the Census Bureau on a basis comparable to the historical data indicates that the differ-

Baking Census at a glance. . .

Larger plants increase market share to 86% ..... Page 6-A

Bread-type rolls pace 3% climb in production ..... Page 9-A

Sweet goods lead gains in average price per lb ..... Page 16-A

Shifts in state product shipment rankings continue ..... Page 17-A

Capital expenditures up 36%, larger share for structures ..... Page 20-A

New detail on ingredient usage; flour consumption down ..... Page 21-A

of variety bread, hamburger buns and bread-type rolls, and decreasing production of white pan bread. At the same time, a few reversals also are noted of some product trends of the past decade.

While changes in product classifications and in the manner in which the Census lists product totals greatly complicate comparisons of 1982 production with 1977 and earlier Census years, total shipments of bread, cake and roll products, on the basis of 1982 product categories, increased 2.7% from 1977.

That performance can be attributed to a slowing in the rate of decrease in white bread production, continued gains in shipments of most variety loaves and strong increases in bread-type rolls.

Production of Bread, Cake and Related Products by all plants — those designated in Standard Industrial Classification 2051 as well as those classified in other industries — totaled 17,405,000,000 lbs in 1982. That is up 465 million lbs from the aggregate of 16,940,000,000 lbs in 1977. While the 1982 and dustry in both poundage and dollar value, but its share of the total market continued to slip. White bread represented 37% of total product poundage in 1982, compared with 41% in 1977 and 48% in 1972. On the basis of value of shipments, white bread accounted for 24% of total shipments in 1982, compared with 28% in 1977 and 33% in 1972.

In variety bread, "whole wheat, cracked wheat, multigrain and other dark bread" led production gains in 1982. Shipments of this category totaled 1,956.1 million lbs in 1982, a gain of 686.1 million, or 54%, from 1,270.2 million in 1977 and up 151% from 777.7 million in 1972.

At the same time, a significant slowing occurred in the rate of gain in shipments of white hearth bread, including French and Italian. Shipments of bread in this category in 1982 amounted to 918.8 million lbs, up 38.9 million lbs, or only 4%, from 1977. That gain contrasts with a 60% expansion in the 1972-77 period.

Strong showing by rolls

In marked contrast to the 1.4% decrease in shipments of bread in 1982 was a 15% gain in shipments of bread-type rolls in the 1977-82 period. Bread-type roll shipments in 1982 aggregated 4,472.7 million lbs, up 593.1 million lbs from 3,879.6 million lbs in 1977.

All six product lines in the bread-type rolls group posted poundage gains in the 1977-82 period, led by hearth rolls and the "other bread-type rolls" segment, which includes Kaiser rolls and bagels.

The Census report confirms a mixed

the Producer Price Index for Bakery Products rose 58%; in the 1977-82 period, the same index rose 47%. That 11-percentage-point difference is identical to the difference in value-of-shipment gains for the two periods.

Value added again positive

Value added by manufacture, judged by the Bureau of the Census as "the best value measure available for comparing the relative economic importance of

ence is minor indeed. For the Bread, Cake and Related Products Industry, the value added total on a basis comparable to previous Census studies is $7,861.7 million, or a difference of only $600,000 from the not-comparable total.

Interruption of trends

The Census report for the most part confirms the continuation of product trends which had their start in the early 1960's, including increasing production

1977 totals are not fully comparable to earlier years, on the basis of 1982 product classifications comparable 1972 production was 17,097,400,000 lbs, or 2% less than in 1982.

Bread decline is smaller

All bread production in 1982 was down 1.4% in pounds from 1977, a marked slowing from the 5% drop noted between 1972 and 1977. White bread remained as the leading product of the Bread, Cake and Related Products In-

performance for sweet goods, with 1982 poundage increasing in snack cakes, "other pies" and cake donuts from 1977 levels, and decreasing in yeast donuts, other sweet yeast goods, fruit cakes and snack pies.

Little change in market share

The 1982 Census suggests only a small change in the share-of-market battle between the two major segments of the Bread, Cake and Related Products

Historical statistics for bread, cake industry

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization (percent)	Ratios Coverage (percent)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS														
1982 Census	1 869	2 305	1 074	170.7	3 249.6	88.9	175.1	1 520.1	7 861.1	5 282.7	13 143.3	382.4	305.7	97	96
1981 ASM	(NA)	(NA)	(NA)	176.1	3 087.3	97.5	198.0	1 494.4	7 218.5	5 279.7	12 493.6	267.8	309.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	181.9	2 923.7	101.9	204.5	1 407.9	6 726.5	4 978.1	11 703.1	288.6	299.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	184.4	2 730.2	101.9	203.5	1 318.3	6 224.5	4 515.3	10 737.7	290.4	281.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	179.2	2 572.2	96.0	189.5	1 251.7	5 686.5	4 133.8	9 817.3	324.3	251.7	(NA)	(NA)
1977 Census	2 549	3 062	1 117	178.0	2 335.8	97.4	191.7	1 152.8	5 370.4	3 909.0	9 274.9	280.4	235.1	99	98
1976 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	191.4	1 799.5	109.7	218.4	917.9	3 599.7	3 085.0	6 679.7	143.8	173.4	(NA)	(NA)
1972 Census	2 801	3 323	1 379	193.5	1 692.2	109.6	219.3	876.2	3 518.1	2 615.0	6 132.0	170.6	137.9	98	99
1971 ASM	(NA)	(NA)	(NA)	195.7	1 633.8	111.0	223.2	831.8	3 208.8	2 507.1	5 716.7	169.2	131.6	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	202.9	1 572.2	117.0	235.1	792.1	3 090.5	2 459.8	5 549.0	149.5	141.6	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	221.0	1 548.7	126.2	255.4	780.9	3 041.7	2 467.8	5 508.3	137.4	147.6	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	215.5	1 456.8	122.3	250.8	740.2	2 878.8	2 357.4	5 234.6	133.9	142.6	(NA)	(NA)
1967 Census	3 445	4 042	1 608	221.7	1 414.0	125.3	252.3	710.8	2 753.0	2 349.5	5 102.6	127.9	139.1	97	99

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

[2]For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications.

Key operating ratios for bread, cake industry

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS								
1982 Census	19 037	52	1 970	8.68	40	65	46 052	41	44.89
1981 ASM	17 532	55	2 031	7.55	42	67	40 991	43	36.46
1980 ASM	16 073	56	2 007	6.88	43	68	36 979	43	32.89
1979 ASM	14 806	55	1 997	6.48	42	67	33 755	44	30.59
1978 ASM	14 354	54	1 974	6.61	42	68	31 733	45	30.01
1977 Census	13 122	55	1 968	6.01	42	67	30 170	43	28.01
1976 ASM	(D)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)
1975 ASM	(D)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)
1974 ASM	(D)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)
1973 ASM	9 402	57	1 991	4.20	46	73	18 807	50	16.48

Industry — Wholesale Bakeries and Grocery Chain Bakeries.

Wholesale Bakeries accounted for 90% of the industry's value of shipments in 1982 and 91% of value added by manufacture. Both percentages are unchanged from the 1977 Census.

At the same time, Grocery Chain Bakeries increased their share of both value of shipments and value added by manufacture at the expense of Retail Multi-Outlet Bakeries, and posted growth rates in both performance measures above those of wholesale baking.

Grocery Chain Bakeries in 1982 accounted for 9% of the industry's value of shipments and 8% of value added by manufacture, up from 8% and 7%, respectively, in 1977. Retail Multi-Outlet Bakeries accounted for only 1% of value of shipments and value added in 1982, down from 2% in 1977.

While the 1982 value-added total for Grocery Chain Bakeries of $634.2 million remained small in comparison to the $7,149.8 million figure for Wholesale Bakeries, the grocery chain baking operations posted a 60% gain in value-added from 1977. That is well above the 46% gain for wholesale baking and the industry overall, probably indicating a shift in grocery bakeries' product mix to higher value-added products.

Similarly, Grocery Chain Bakeries recorded a 55% gain in value of shipments in 1982, compared with 42% for Wholesale Bakeries and the industry overall.

The data for the different sectors of the industry also affirm the dominance of Wholesale Bakeries. This segment of the Bread, Cake and Related Products Industry accounted for 90% of the value of shipments, 91% of total employes, and 94% of the total payroll for the industry. Grocery Chain Bakeries, with 9% of the value of shipments, had 7% of the employes and 8% of the payroll total. Wholesale Bakeries accounted for 88% of the number of production workers, whereas Grocery Chain Bakeries employed 10% of the total.

The four-point spread between the gain in value added for the Bread, Cake and Related Products Industry and the value of shipments continues what is regarded as a positive trend.

Value added by manufacture in 1982 represented 60% of the industry's value of shipments, up from 58% in 1977, 57% in 1972, 54% in 1967 and 53% in 1963.

Primary gain trails total

Value of 1982 shipments of products classified as primary to the baking business was 38% above 1977, compared with the 42% rise in value of shipments of all products. That is in contrast to 1977, when the value of primary product shipments was 54% above 1972, and the value of all product shipments was up 51%.

Industry shipments, which totaled $13,143.3 million in 1982, compared with $9,274.8 million in 1977, represent the aggregate value of shipments of all establishments classified in the industry. The 1982 aggregate included

Data on value of shipments and value added by manufacture, by industry group, are shown in the following table for the past five Census of Manufactures years, with figures in millions of dollars and percentages of the total for the Bread, Cake and Related Products Industry in parentheses:

Value of shipments --(millions of dollars)--

	1982	1977	1972	1967	1963
Bread, Cake and Related (total)	**$13,143.3 (100)**	**$9,274.9 (100)**	**$6,152.6 (100)**	**$5,102.6 (100)**	**$4,506.0 (100)**
Wholesale bakeries	11,836.6 (90)	8,348.1 (90)	5,320.6 (86)	4,400.7 (86)	3,508.2 (78)
Grocery chain bakeries	1,172.4 (9)	755.9 (8)	651.5 (11)	468.3 (9)	465.5 (10)
Home service bakeries	n.a.	n.a.	4.6 (...)	98.2 (2)	333.5 (7)
Retail multi-outlet bakeries	134.3 (1)	170.9 (2)	175.9 (3)	135.4 (3)	198.8 (5)

Value added by manufacture --(millions of dollars)--

	1982	1977	1972	1967	1963
Bread, Cake and Related (total)	**$7,861.1 (100)**	**$5,370.4 (100)**	**$3,518.1 (100)**	**$2,753.0 (100)**	**$2,403.8 (100)**
Wholesale bakeries	$7,149.8 (91)	$4,892.4 (91)	3,073.1 (87)	2,390.4 (87)	1,868.2 (78)
Grocery chain bakeries	634.2 (8)	370.9 (7)	337.1 (10)	229.4 (8)	225.9 (10)
Home service bakeries	n.a.	n.a.	2.9 (...)	58.0 (2)	201.5 (8)
Retail multi-outlet bakeries	77.1 (1)	107.0 (2)	116.9 (3)	75.2 (3)	108.1 (4)

Baking data from four Census years

	Establishments		All employes		Production workers			Value added by manufacture	Cost of materials	Value of shipments	Capital expenditures, new	End-of-year inventories
	Total	With 20 employes or more	Number (1,000)	Payroll (million dollars)	Number (1,000)	Man-hours (millions)	Wages (million dollars)	(million dollars)	(million dollars)	(million dollars)	(million dollars)	(million dollars)
BREAD, CAKE AND RELATED PRODUCTS												
1982 Census	**2,305**	**1,074**	**170.7**	**3,249.6**	**88.9**	**175.1**	**1,520.1**	**7,861.1**	**5,282.7**	**13,143.3**	**382.4**	**305.7**
Wholesale	2,169	954	155.1	2,953.4	78.0	154.2	1,316.3	7,149.8	4,686.9	11,836.6	354.0	n.a.
Grocery Chain	94	87	12.7	259.1	9.3	18.0	182.3	634.2	538.4	1,172.4	25.8	n.a.
Retail Multi-Outlet	42	33	3.0	37.2	1.6	2.9	21.4	77.1	57.3	134.3	2.6	5.5
1977 Census	**3,062**	**1,117**	**178.0**	**2,335.8**	**97.4**	**191.7**	**1,152.8**	**5,370.4**	**3,909.0**	**9,274.9**	**280.4**	**235.1**
Wholesale	2,900	976	160.1	2,107.2	84.5	166.6	986.3	4,892.4	3,458.2	8,348.1	256.7	209.1
Grocery Chain	100	87	12.3	174.7	10.0	19.8	134.6	370.9	386.9	755.9	14.2	20.4
Retail Multi-Outlet	62	54	5.5	54.0	3.0	5.3	32.0	107.0	64.0	170.9	9.5	5.6
1972 Census	**3,323**	**1,379**	**193.5**	**1,692.2**	**109.6**	**219.3**	**876.2**	**3,518.1**	**2,615.0**	**6,132.0**	**170.6**	**137.9**
Wholesale	3,077	1,177	167.7	1,480.5	89.5	180.0	705.9	3,073.1	2,248.4	5,320.6	139.7	n.a.
Grocery Chain	139	118	18.6	167.0	15.8	30.9	140.3	337.1	314.0	651.5	27.2	n.a.
Home Service	9	4	.3	1.8	.2	.3	.8	2.9	1.8	4.6	n.a.	n.a.
Retail Multi-Outlet	98	80	7.8	51.3	4.6	8.9	33.0	116.9	59.4	175.9	4.2	n.a.
1967 Census	**4,042**	**1,608**	**221.7**	**1,414.0**	**125.3**	**252.3**	**710.8**	**2,753.0**	**2,349.5**	**5,102.6**	**127.9**	**139.1**
Wholesale	3,751	1,387	188.5	1,223.8	101.7	207.5	576.5	2,390.4	2,010.0	4,400.7	115.2	115.9
Grocery Chain	128	104	18.4	111.8	16.4	30.0	95.6	229.4	239.1	468.3	9.2	16.7
Home Service	35	24	5.7	36.7	2.0	3.9	10.9	58.0	40.2	98.2	1.0	2.4
Retail Multi-Outlet	128	93	9.1	41.7	5.2	10.9	27.8	75.2	60.2	135.4	2.5	4.1

$10,769.3 million in products classified in the industry (primary); $358.4 million of products classified in other industries (secondary), and $2,015.7 million in miscellaneous receipts.

Plants in the Cookie and Cracker Industry, S.I.C. 2052, in 1982 shipped products valued at $142.4 million that were classified as primary to the Bread, Cake and Related Products Industry, according to the Census. That is up from $76.1 million in 1977. The only product shipped in 1982 by the Cookie and Cracker Industry for which a dollar value is given is bread-type rolls, at $27.2 million.

Plants in other industries shipped bread and cake products in 1982 valued at $116.5 million, with $86 million of that total in the bread-type rolls category.

In 1977, other industries' shipments of bread and cake products were valued at $102.1 million.

Cookies from bread bakers

Of the $358.4 million in secondary products shipped by establishments in the Bread, Cake and Related Products Industry in 1982, nearly a third, 32%, or $113.8 million, was in cookie or cracker products. In 1977, the industry's shipments of cookie and cracker products were valued at only $51.5 million.

Of the 1982 cookie and cracker product total, $111.9 million was in cookies, wafers and ice cream cones, compared with $46.6 million in 1977, and $1.9 million was in crackers, pretzels, biscuits and related products, down from $4.8 million in 1977.

The remaining $244.6 million in secondary products shipments by the Bread, Cake and Related Products Industry in 1982 included $132.8 million in frozen specialties products, $33.7

million in ice cream and frozen desserts, $31.9 million of flavoring extracts and syrups, and $22.1 million of food preparations, not elsewhere classified. With the exception of cookies of crackers, the 1977 Census did not provide value of shipment data on secondary products shipped by the industry. The 1982 miscellaneous receipts total of $2,015.7 million, a gain of 45% from $1,392.7 million in 1977, includes "receipts for work done for others on their materials; miscellaneous receipts, including receipts for repair work, sales of scrap and refuse, etc.," and "sales of products bought and resold without further manufacture, processing or assembly." Of the aggregate miscellaneous receipts, $1,834.7 million was in the resales category.

Reflecting the larger gains in value of shipments of secondary products, the industry's specialization ratio in 1982 declined to 97% from 99% in 1977 and 98% in 1972. Establishments in the Bread, Cake and Related Products Industry in 1982 accounted for 98% of the shipments of products considered primary to the industry.

That coverage ratio was the same as in 1977 and compared with 99% in 1972 and 1967.

Larger plants increase market share to 86%

LONG-STANDING TRENDS IN NUMBER of plants in the Bread, Cake and Related Products Industry and in shares of business among plants of different size categories accelerated in the 1977-82 period, according to the 1982 Census of Manufactures. There was a significant jump in the number of plants "disappearing" from the baking industry in the period, with almost all of that decrease occurring in the smallest plant size category, those with fewer than 20 employes. And the share of value of shipments and value added by manufacture accounted for by the larger plants, those with 100 or more employes, continued to increase.

Represent 22% of total plants

The 501 plants in the Bread, Cake and Related Products Industry with more than 100 employes — 22% of the industry's plants — accounted for 86% of the industry's value of shipments, or $11.3 billion out of the aggregate of $13.1 bilion. That 86% share is up from 83% in 1977, 81% in 1972, 79% in 1967 and 74% in 1963.

The gain in market share for the plants with 100 or more employes was at the expense of plants with fewer than 20 employes and those with 50 to 99 employes. The 1,231 baking plants with 20 to 49 employes accounted for 8% of total industry value of shipments in 1982, down slightly from 9% in 1977, 10% in 1972 and 11% in 1967.

Baking plants with 20 to 49 employes — a total of 366 in 1982 — accounted for 4% of the industry's value of shipments, unchanged from 1977 and compared with 5% in 1972.

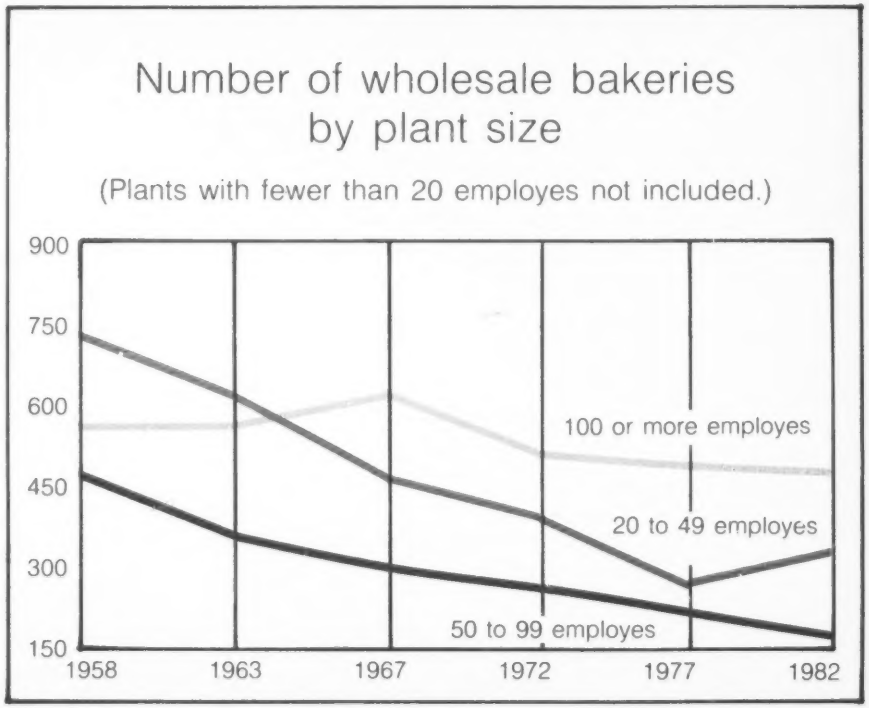
Similar for Wholesale Bakeries

The trend of increasing market share for larger plants also continued within the Wholesale Bakeries category of the Bread, Cake and Related Products Industry. The 440 wholesale plants with 100 or more employes — representing 20% of all wholesale plants — accounted for 86% of value of shipments by all wholesale bakeries in 1982. That is up from 84% in 1977, 81% in 1972 and 79% in 1967.

The 1,215 wholesale plants with fewer than 20 employes accounted for 3% of 1982 value of shipments by wholesale bakeries, down slightly from a 4% share in 1977.

Even larger in value added

The 501 plants in the Bread, Cake and Related Products Industry with more than 100 employes accounted for 86% of value added, 85% of cost of materials and ingredients, and 88% of capital expenditures in 1982.



The 1982 Census shows four plants Census, these four plants, all in the Wholesale Bakeries segment, had aggregate product shipments valued at $573 million, or an average of $143.2 million per plant. That $573 million

fewer than 20 employes, while representing 53% of plant numbers, accounted for only 2% of industry value of shipments. That share is down from 4% in 1977, 1972 and 1967. The 207 bak-

87% of the total value added by manufacture, 85% of the expenditures for materials and ingredients, and 86% of all capital expenditures. Similarly, in the Wholesale Bakeries category, the 440

in the 1,000 to 2,499-employe size category, the largest of nine plant size classifications. That total is down from six in 1977 and compares with two in 1972. According to the 1982

total is 86% larger than the total value of shipments in 1982 by the 1,231 baking plants with fewer than 20 employes. The aggregate also exceeds the total value of shipments of $568.2 mil-

Bread, Cake and Related Products baking plants by employe size

	1982	1977	1972	1967	1963	1958
1-19 employes	1,231	1,945	1,944	2,434	3,106	3,836
20-49 employes	366	314	459	555	764	897
50-99 employes	207	247	307	358	448	544
100 or more	501	556	613	695	692	708
Total plants	**2,305**	**3,062**	**3,323**	**4,042**	**5,010**	**5,985**

Wholesale baking plants by employe size

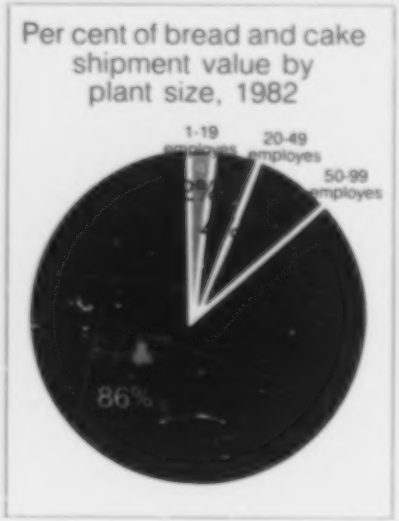
	1982	1977	1972	1967	1963	1958
1-19 employes	1,215	1,914	1,900	2,364	2,741	3,443
20-49 employes	333	276	388	473	624	742
50-99 employes	181	215	253	300	366	462
100 or more	440	495	536	614	556	552
Total plants	**2,169**	**2,900**	**3,077**	**3,751**	**4,287**	**5,199**

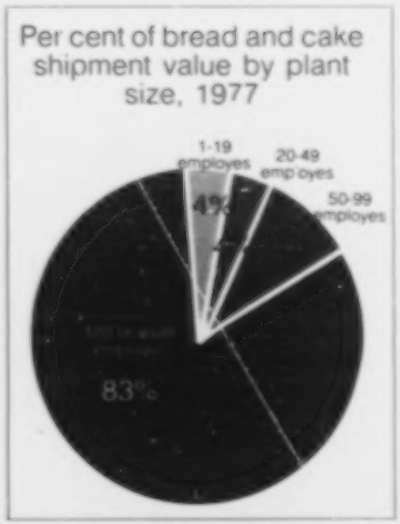
Share of bread, cake shipments by plant size

	All Establishments			Establishments with 1 to 19 employes			Establishments with 20 to 49 employes			Establishments with 50 to 99 employes			Establishments with 100 or more employes		
	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value
Bread, cake and related products—															
1982	2,305	$13,143.3	100%	1,231	$ 307.7	2%	366	$ 568.2	4%	207	$ 967.5	8%	501	$11,300.0	86%
1977	3,062	9,274.9	100%	1,945	343.8	4%	314	385.6	4%	247	831.1	9%	556	7,714.4	83%
1972	3,323	6,152.6	100%	1,944	235.8	4%	459	327.1	5%	307	633.6	10%	613	4,956.1	81%
1967	4,042	5,102.6	100%	2,434	205.9	4%	555	292.6	6%	358	551.5	11%	695	4,052.6	79%
1963	5,010	4,505.9	100%	3,106	236.6	5%	764	330.2	8%	448	595.1	13%	692	3,344.0	74%
Wholesale bakeries—															
1982	2,169	$11,836.6	100%	1,215	$ 299.2	3%	333	$ 515.9	4%	181	$ 852.9	7%	440	$10,168.5	86%
1977	2,900	8,348.1	100%	1,914	336.1	4%	276	338.7	4%	215	687.5	8%	495	6,985.8	84%
1972	3,077	5,320.6	100%	1,900	225.6	4%	388	282.8	5%	253	507.4	10%	536	4,304.8	81%
1967	3,751	4,400.7	100%	2,364	195.1	4%	473	251.8	6%	300	461.8	10%	614	3,492.0	79%
1963	4,287	3,508.2	100%	2,741	209.3	6%	624	281.7	8%	366	496.2	14%	556	2,521.0	72%
Grocery chain bakeries—															
1982	94	$1,172.4	100%	7	$ 3.4	...	15	$ 29.3	2%	22	$ 107.0	9%	50	$1,032.6	89%
1977	100	755.9	100%	13	4.4	1%	13	26.3	3%	26	114.2	15%	48	611.0	81%
1972	139	651.5	100%	21	n.a.	n.a.	23	n.a.	n.a.	35	n.a.	n.a.	60	n.a.	n.a.
1967	128	468.3	100%	24	3.6	1%	24	19.5	4%	24	52.9	11%	56	392.3	84%
1963	153	465.5	100%	31	4.5	1%	25	14.8	3%	29	54.5	12%	68	391.7	84%
Retail multi-outlet bakeries—															
1982	42	$ 134.3	100%	27	$ 5.1	4%	18	$ 23.1	17	4	$ 7.6	6%	11	$ 98.6	73
1977	62	170.9	100%	8	$ 3.3	2%	25	20.6	12%	16	29.4	17%	13	117.6	69%
1972	98	175.9	100%	18	4.2	2%	47	20.3	11%	17	19.0	11%	16	132.4	75%
1967	128	135.4	100%	35	5.5	4%	51	17.6	13%	26	24.1	18%	16	88.2	65%
1963	289	198.8	100%	150	13.3	7%	86	23.7	12%	33	25.9	13%	20	135.9	68%

lion by the 366 plants with 20 to 49 employes.

Long-term trends in decreasing number of companies and of plants accelerated in the Bread, Cake and Related Products Industry.





According to the Census, there were 1,869 companies in the industry in 1982, down 680, or 27%, from the 2,549 companies in 1977, which in turn was down only 9% from 2,801 in 1972. The Census defines company as "a business organization consisting of one establishment or more under common ownership or control."

Plant number decrease of 25%

The 27% decrease in number of companies in 1982 was accompanied by a 25% decrease in number of plants in the Bread, Cake and Related Products Industry. The Census counted a total of 2,305 plants in 1982, compared with 3,062 in 1977, which was down 8% from 1972.

Almost all of the 757-plant loss between 1977 and 1982 was in those baking plants with fewer than 20 employes. That was a marked change from the 1972-77 period, when the plant decrease was concentrated among the larger baking plants.

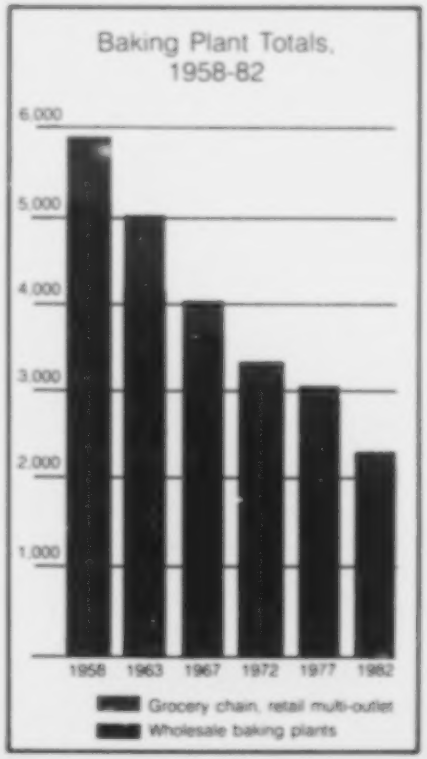
Of the 2,305 baking plants counted in the 1982 Census, a total of 1,074 were in the 20-employe or more category, while 1,231 were in the smaller size grouping. In the 1977 Census, 1,117 plants were counted in the larger category and 1,945 in the smaller plant grouping. Thus, the 1982 Census shows a decrease of only 43 plants, or 4%, in the 20-employe or more category, and a decrease of 714, or 37%, in smaller plants.

The 1982 total plant number of 2,305 compares with 3,323 in the 1972 Census, 4,042 in 1967 and 5,010 in 1963.

The decrease of 757 plants noted in the 1982 Census compares with a drop of only 261 plants in the 1972-77 period and also exceeds the 719-plant decrease in the 1967-72 period. In contrast to the 1977-82 Census period when number of plants with fewer than 20 employes decreased by 714, the 1977 Census showed one more plant in that size category than in 1972.

Gain in one plant size category

Despite the continuing decrease in total plant numbers in the Bread, Cake and Related Products Industry, the number of plants with 20 to 49 employes increased. Plants in this size category totaled 366 in 1982, up 17% from 314 in 1977. This category accounted for the bulk of the plant number decrease in the 1972-77 period, with the 1977 total of 314 down 46% from 459 in 1972.



Shipments of $100,000 or more

The 1982 Census is the second to list number of companies shipping $100,000 or more of principal baked food products. The listing, which includes duplication in numbers because many companies ship in excess of $100,000 of more than one product, shows that 168 companies in 1982 shipped white pan bread valued at $100,000 or more. That is down from 223 in 1977. Decreases were also noted in number of plants shipping white hearth bread and hamburger and wiener rolls.

Increases generally paralleled trends in poundage production, including more plants in the $100,000 or more category in whole wheat bread and other bread-type rolls, English muffins and hearth rolls.

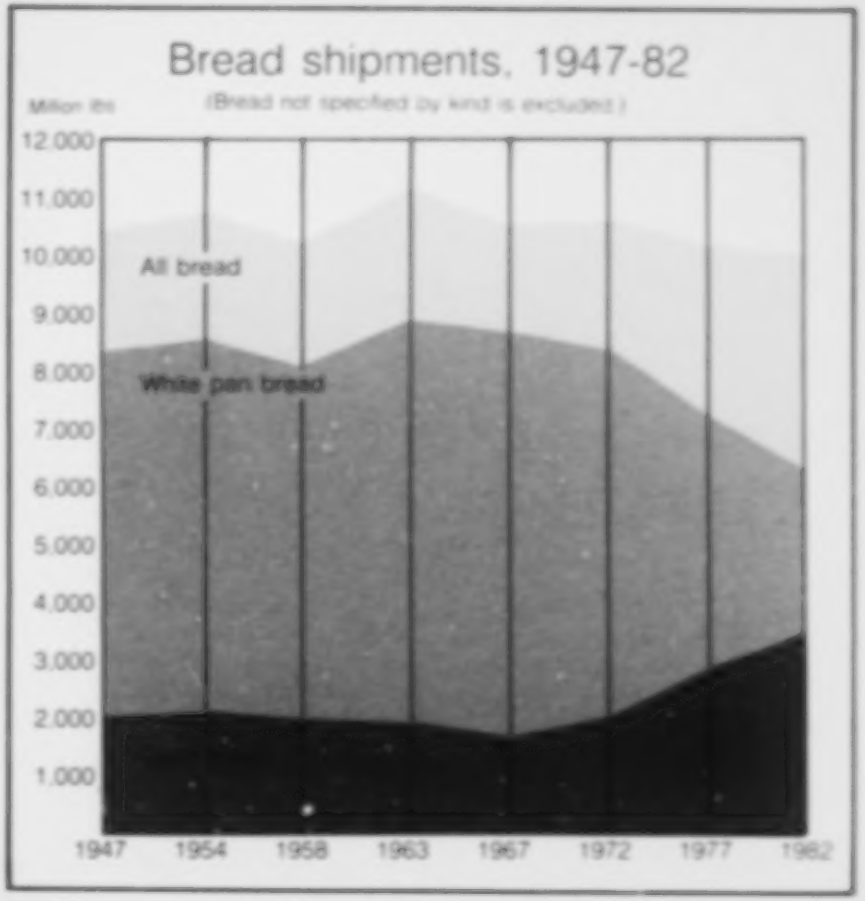
The following table shows number of companies shipping $100,000 or more of principal baked food products in 1982 and in 1977:

	Number of companies shipping $100,000	
	1982	1977
White pan bread	168	223
White hearth bread	149	193
Whole wheat, cracked	130	123
Rye, pumpernickel	110	117
Other variety bread	91	90
Hamburger, wiener rolls	152	185
Brown 'n serve rolls	60	79
English muffins	41	39
Hearth rolls	77	71
Other bread-type rolls	115	112
Bread stuffing, croutons	43	41
Yeast-raised donuts	94	131
Other sweet yeast goods	121	141
Snack cakes	49	39
Fruit cakes, holiday-type	26	35
All other soft cakes	114	135
Snack pies	41	44
Other fruit, custard pies	58	50
Pastries	36	36
Cake-type donuts	78	83

Bread-type rolls pace 3% gain in production

PRODUCTION OF PRODUCTS PRIMARY to the Bread, Cake and Related Products Industry in 1982 was almost 3% above the 1977 aggregate, according to the final Census of Manufactures report. Although the Census does not provide a shipment total for the Bread, Cake and Related Products Industry, the sum of the six major product categories shows 1982 production by all plants — those classified in the industry as well as those classified in other industries — totaled 17,405,000,000 lbs. That is up 465 million lbs, or 2.7%, from the aggregate of 16,940,000,000 lbs shipped in 1977.

While the 1982 and 1977 totals are not fully comparable to earlier years because of changes in product classifications and in the manner in which the Census lists product totals, on the basis of 1982 product classifications, comparable 1972 production aggregated 17,097,400,000 lbs, 2% below 1982.



Elimination and estimates

Difficulty in comparing poundage production in the 1982 Census with previous years stems from the elimination in the current Census of production figures for five "not specified by kind" categories and from the extensive use of estimates for some products.

For example, the 1982 Census does not provide a production total for "white, wheat and rye bread, not specified by kind." Nor does it show the production total for that category in 1977, which was listed in the 1977 Census at 611.2 million lbs. Similar eliminations were made in not-specified-by-kind bread-type rolls, (244.5 million lbs in 1977); sweet yeast goods, (128.3 million lbs in 1977); soft cakes (77.2 million lbs) and pies, (29 million lbs).

In addition, the 1982 final report notes that "for some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data." From 20% to 29% of published poundage figures for seven products, including white pan bread, were estimated in this manner. And from 10% to 19% of poundage for six other products, including hamburger and wiener rolls, was estimated on the same basis. (See chart on Pages 14-A and 15-A.)

The final 1982 Census revised production totals from the preliminary Census report for four products. Poundage was increased for bread stuffing, croutons and bread crumbs and for cake-type donuts; it was decreased for yeast-raised donuts and snack cakes. Net change was an increase of 29.2 million lbs.

According to the Census, production of all bread by all producers in 1982 aggregated 10,123.1 million lbs, down 1.4% from 10,271.7 million lbs in 1977. That decrease compares with a drop of 4% in 1977 bread production from the 1972 aggregate of 10,749.7 million lbs, again on the basis of 1982 product classifications. On the same basis, bread production totaled 10,649.5 million lbs in 1967 and 11,015.8 million lbs, the peak, in 1963.

Slowing in white bread decline

While production of white pan bread continued its 20-year downward trend, the percentage decrease in 1982 was smaller than in the previous Census period. Production of white pan bread in 1982, according to the Census, totaled 6,410.2 million lbs, off 12% from 7,321.6 million lbs in 1977, and compared with 8,657.3 million in 1972, 8,807.9 million in 1967 and the all-time peak of 9,002.2 million in 1963. White pan bread production in 1977 was 15% below the 1972 level.

Despite the continuing slide for white pan bread production, it remained wholesale baking's leading product in both value of shipments and in poundage. White pan bread in 1982 accounted for shipments valued at $2,617.3 million, 24% of the value of all bread and cake product shipments by all produc-

ers. In 1977, white bread represented 28% of value of shipments. In terms of poundage, white pan bread's share of the 1982 total was 37%, compared with 43% in 1977 and 51% in 1972.

Wheat bread leads category

Largest poundage increase in the bread category in 1982 was in "whole wheat, cracked wheat, multigrain and other dark bread." Shipments in this category totaled 1,956.1 million lbs, a gain of 686.1 million lbs, or 54%, from 1,270.2 million lbs in 1977 and up 151% from 777.7 million lbs in 1972. Wheat bread production has increased rapidly since hitting a low point of 566.6 million lbs in 1967.

A marked slowing was noted in the rate of gain in shipments of white hearth bread, including French and Italian, in 1982. Shipments totaled 918.8 million lbs, up 38.9 million lbs, or 4%, from 1977. That contrasts with a 330-million-lb increase in the 1977 Census following a 40.8-million-lb gain in 1967-72.

Shipments of rye bread, including pumpernickel, totaled 383 million lbs in 1982, a decrease of 4.3 million lbs, or 1%, from 387.3 million lbs in 1977. The latter total was down 9% from 426 million in 1972 and compared with the peak of 620.3 million lbs in 1954.

Shipments of "other variety bread," including raisin, potato, salt-rising, salt-free and canned, totaled 455 million lbs in 1982, up 10% from 412.7 million lbs in 1977 and compared with 339 million in 1972. The peak for this category was 630.3 million lbs in 1958.

Bread-type rolls up 15% from '77

While total bread shipments in 1982 were 148.6 million lbs below the 1977 aggregate, poundage of bread-type rolls was up 593.1 million lbs. Shipments of from 257.3 million lbs in 1977, the first Census in which the category was listed. This segment also led the group in percentage gain in value of shipments, with a jump of 89%.

Shipments of bread stuffing, croulion lbs, or more than double the 136.5-million-lb production of 1977. Shipments of English muffins in 1982 totaled 404 million lbs, up 21% from 334.8 million lbs in 1977. The 1977 Census also was the first to identify 1982 totaled 279 million lbs, a gain of 15.5 million, or 6%, from 263.5 million lbs in 1977.

Mixed results in sweet goods

Production of all sweet yeast goods

Summary statistics for S.I.C. 2051

Item	Bread, cake, and related products (SIC 2051)			
	Total	Wholesale bakeries, including home service (SIC 2051-12)	Grocery chain bakeries (SIC 2051-13)	Retail multioutlet bakeries (SIC 2051-16)
Companies ..... number...	1 869	(NA)	(NA)	(NA)
All establishments ..... do...	2 305	2 169	94	42
With 1 to 19 employees ..... do...	1 231	1 215	7	9
With 20 to 99 employees ..... do...	573	514	37	22
With 100 employees or more ..... do...	501	440	50	11
All employees:				
Average for year ..... 1,000...	170.7	155.1	12.7	3.0
Annual payroll ..... mil. dol...	3 249.6	2 953.4	258.1	37.2
Production workers:				
Average for year ..... 1,000...	88.9	78.0	9.3	1.6
March ..... do...	87.7	76.9	9.2	1.6
May ..... do...	88.8	77.8	9.4	1.6
August ..... do...	90.5	79.4	9.5	1.6
November ..... do...	88.7	77.7	9.3	1.6
Hours ..... millions...	175.1	154.2	18.0	2.9
January to March ..... do...	42.1	37.1	4.3	.7
April to June ..... do...	44.0	38.8	4.5	.7
July to September ..... do...	45.3	40.0	4.6	.7
October to December ..... do...	43.7	38.2	4.7	.8
Wages ..... mil. dol...	1 520.1	1 316.3	182.3	21.4
Value added by manufacture ..... do...	7 861.1	7 149.8	634.2	77.1
Cost of materials, etc. ..... do...	5 282.7	4 686.9	538.4	57.3
Materials, parts, containers, etc., consumed ..... do...	3 729.8	3 307.8	377.0	45.0
Resales ..... do...	1 286.1	1 142.8	134.3	9.0
Fuels consumed ..... do...	132.7	116.9	14.0	1.8
Purchased electric energy ..... do...	109.3	95.3	12.6	1.4
Contract work ..... do...	24.9	24.2	.6	.1
Value of shipments, including resales ..... do...	13 143.3	11 836.6	1 172.4	134.3
Value of resales ..... do...	1 834.7	1 652.4	171.7	10.5
Capital expenditures for plant and equipment ..... do...	420.8	390.8	26.9	2.9
New capital expenditures ..... do...	382.4	354.0	25.8	2.6
New buildings and other structures ..... do...	92.1	86.3	5.1	.6
New machinery and equipment ..... do...	290.4	267.7	20.7	2.0
Used capital expenditures ..... do...	38.4	36.9	1.1	.3
Primary product specialization ratio ..... percent...	97	(NA)	(NA)	(NA)
Coverage ratio ..... do...	98	(NA)	(NA)	(NA)

all rolls in 1982 amounted to 4,472.7 million lbs, up 15% from 3,879.6 million lbs in 1977.

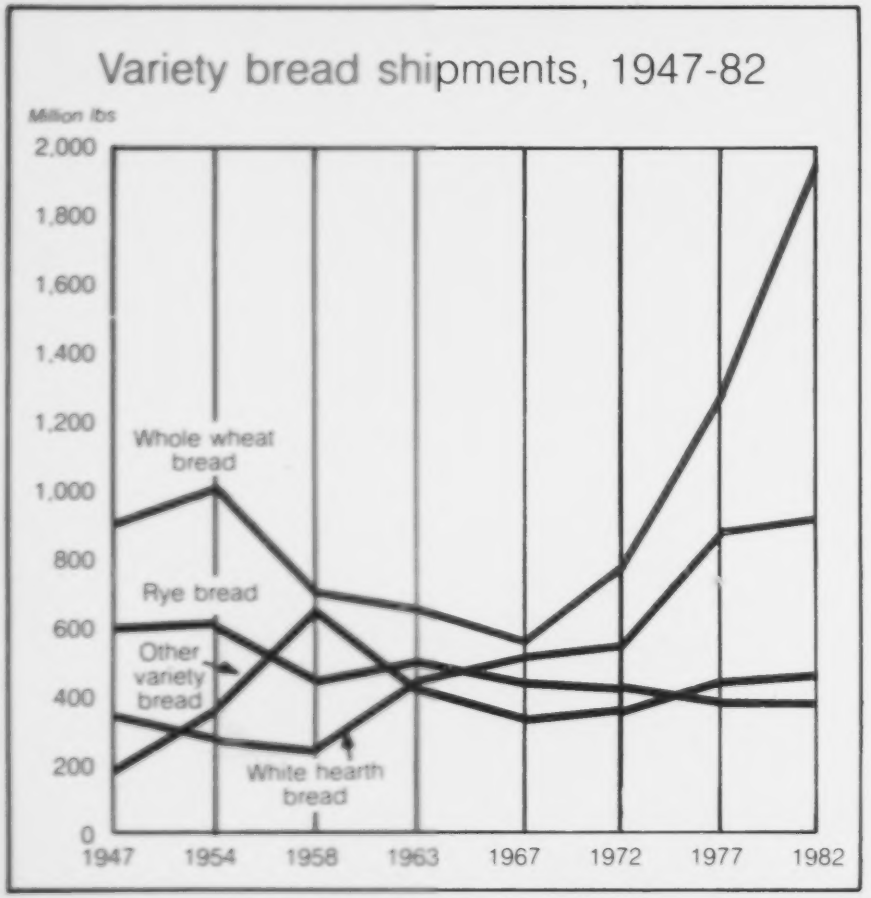
All six product categories in the bread-type rolls group posted poundage gains in the 1977-82 period, led by hearth rolls and the "other bread-type rolls" segment, including Kaiser rolls and bagels. Shipments in the latter product category in 1982 totaled 421.2 million lbs, up 163.9 million lbs, or 64%, tons and bread crumbs in 1982 totaled 376.6 million lbs, a gain of 147.1 million lbs, or 64%, from 1977 production of 229.5 million lbs. The preliminary Census report for 1982 had placed shipments of bread stuffing, croutons and bread crumbs at 340.3 million lbs.

Doubling in hearth rolls

Hearth roll shipments in 1982 aggregated 273.4 million lbs, up 136.9 million lbs, or 100%, from 1977 production of 136.5 million lbs. The Census had reported hearth roll and English muffin production separately.

Hamburger and wiener rolls continued as baking's largest product in poundage after white pan bread. Shipments of these rolls in 1982 totaled 2,718.5 million lbs, up 60.5 million lbs from 2,658 million lbs in 1977. That 2% increase in poundage contrasts with a 13% gain in the previous Census period.

Shipments of brown 'n serve rolls in 1982 totaled 695.2 million lbs, down 123.3 million lbs, or 15%, from 818.5 million in 1977, and continuing a downward trend extending back to 1972, when production totaled 831.1 million lbs. The Census shows mixed performance among sweet goods, with 1982 shipments of snack cakes, "other pies," and cake donuts above 1977 levels. On the other hand, production of other sweet yeast goods, fruit cakes, soft



(Bread not specified by kind is excluded.)

(Products not specified by kind are excluded.)

cakes and snack pies in 1982 was below 1977.

One of the more significant changes in the sweet goods category was in cake donuts, with 1982 shipments of 444.3 million lbs, up 90.2 million lbs, or 25%, from 354.1 million in 1977. That increase contrasts with a 9% decrease noted in cake donut production in 1977 from 1972 levels.

Revision in both donut totals

The final Census report increased production of cake donuts by 52.9 million lbs from the preliminary report's total of 391.4 million lbs. At the same time, it lowered production of yeast-raised donuts by 48.8 million lbs. Shipments of yeast-raised donuts in 1982, according to the final report, totaled 140.3 million lbs, down 82.2 million, or 37%, from 1977.

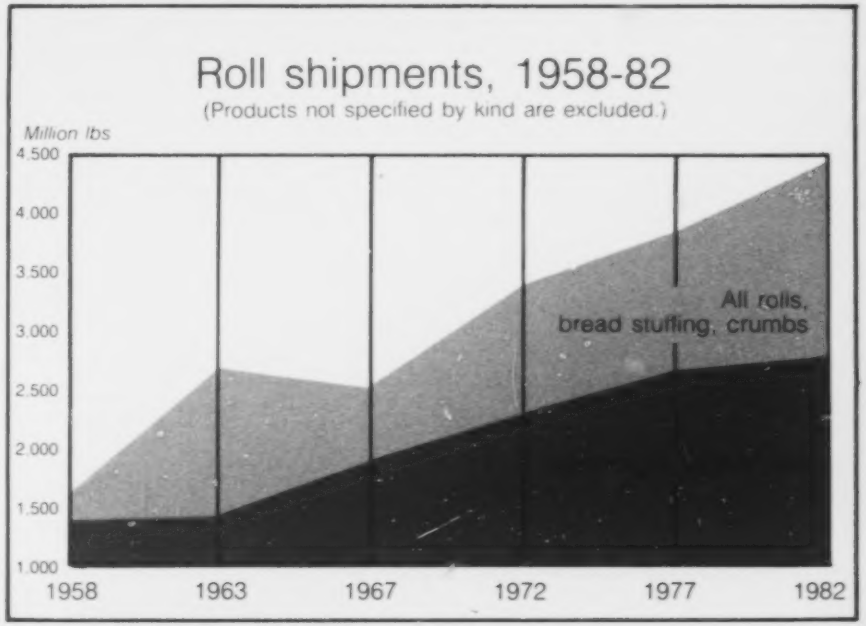
While the final Census report for the Frozen Specialties Industry has not been released, the preliminary report for that industry showed donut production trends exactly opposite of those in fresh donuts produced by the Bread, Cake and Related Products Industry. Production of frozen cake donuts totaled 78.4 million lbs in 1982, down from 108.6 million lbs in 1977. Production of frozen sweet yeast goods, including yeast-raised donuts, totaled 391.1 million lbs, a fourfold increase from 93 million lbs in 1977.

Snack cakes in 11% increase

Production of fresh soft cakes, according to the final Census report for the Bread, Cake and Related Products Industry, totaled 1,203.3 million lbs, up 5% from 1,147.1 million in 1977. Production of snack cakes totaled 891.2 million lbs, up 87.1 million lbs, or 11%, from 1977. The 1982 snack cake total was revised downward by 11.2 million lbs in the final report from the preliminary Census figure.

Fruit cake production in 1982 totaled 16.6 million lbs, down 8.1 million lbs, or 33%, from 1977, while production of all other soft cakes, including pound, layer, sheet and cheese, aggregated 295.5 million lbs, down 22.8 million lbs, or 7%, from 1977.

Production of fresh pies, fruit and custard, in 1982 totaled 466.4 million lbs, down slightly from 469 million lbs in 1977.



Bread, cake and roll shipments in pounds, dollar value

[Includes quantity and valun of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included.

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	BREAD, CAKE, AND RELATED PRODUCTS						
2051- —	Total	(NA)	(X)	11 038.1	(NA)	(X)	7 965.9
20511 —	Bread, white, wheat, and rye (including frozen)	(NA)	(X)	4 698.1	(NA)	(X)	3 500.7
20511 11	White pan — mil lb baked wt.	168	**6 410.2	2 617.3	223	7 321.6	2 197.2

	Variety breads:							
20511 13	White hearth, including French, Italian, etc.	do..	149	**918.8	434.5	193	879.9	308.5
20511 15	Whole wheat, cracked wheat, multigrain, and other dark wheat breads	do..	130	1 956.1	961.8	123	1 270.2	468.5
20511 17	Rye, including pumpernickel	do..	110	**383.0	206.5	117	387.3	157.7
20511 28	Other variety breads (raisin, potato, salt-rising, salt-free, canned, etc.)	do..	91	**455.0	254.1	90	412.7	172.1
20511 00	Bread, white, wheat, and rye, n.s.k.		(NA)	(X)	221.9	(NA)	(X)	196.7
20512 —	Rolls, bread-type, including brown and serve, stuffing, and crumbs		(NA)	(X)	2 437.7	(NA)	(X)	1 679.6
	Rolls, bread-type (including frozen):							
20512 33	Hamburger and wiener rolls	mil lb baked wt..	152	*2 718.5	1 326.4	185	2 658.0	966.8
20512 35	Brown and serve rolls	do..	60	*279.0	161.6	79	283.5	115.8
20512 36	English muffins	do..	41	*404.0	258.1	39	334.8	164.5
20512 37	Hearth rolls	do..	77	**273.4	143.6	71	136.5	79.9
20512 38	Other bread-type rolls (kaiser, except hearth-type, parkerhouse, etc.) including bagels	do..	115	**421.2	233.0	112	257.3	123.0
20512 41	Breadstuffing, croutons, and bread crumbs	do..	43	*376.6	237.5	41	229.5	128.3
20512 00	Rolls, bread stuffing, bread crumbs, including frozen, n.s.k.		(NA)	(X)	77.4	(NA)	(X)	99.5
20513 —	Sweet yeast goods, except frozen		(NA)	(X)	760.7	(NA)	(X)	640.4
20513 13	Yeast-raised doughnuts	mil lb baked wt..	94	*140.3	162.4	131	222.5	170.0
20513 98	All other types of sweet yeast goods, including sweet rolls and coffee cake	do..	121	*554.9	580.8	141	596.0	384.8
20513 00	Sweet yeast goods, n.s.k.		(NA)	(X)	17.5	(NA)	(X)	85.8
20514 —	Soft cakes, except frozen		(NA)	(X)	1 231.2	(NA)	(X)	949.9
20514 13	Snack cakes	mil lb baked wt..	49	891.2	852.4	39	804.1	599.9
20514 15	Fruit cakes, holiday type	do..	26	16.6	37.1	35	24.7	26.0
20514 19	All other soft cakes (except frozen), including pound, layer, sheet, cheese, etc.	do..	114	**295.5	322.8	135	318.3	257.5
20514 00	Soft cakes, except frozen, n.s.k.		(NA)	(X)	19.0	(NA)	(X)	64.5
20515 —	Pies (fruit and custard), except frozen		(NA)	(X)	394.5	(NA)	(X)	297.1
20515 13	Snack pies	mil lb baked wt..	41	279.8	249.7	44	286.9	157.0
20515 19	All other	do..	58	186.6	144.2	50	182.1	122.0
20515 00	Pies (fruit and custard), except frozen, n.s.k.		(NA)	(X)	.6	(NA)	(X)	18.1
20516 —	Pastries:							
20516 00	Pastries (except frozen), all types of baking powder leavened only, including cream puffs, eclairs, lady fingers, French pastry, puff pastry, etc.		36	(X)	39.2	36	(X)	31.2
20517 —	Doughnuts (cake type):							
20517 00	Doughnuts, cake type (except frozen) (baking powder leavened)	mil lb baked wt..	78	444.3	485.2	83	354.1	241.1
20510 00	Bread, cake, and related products, n.s.k., typically for establishments with 20 employees or more (see note)		(NA)	(X)	726.0	(NA)	(X)	372.3
20510 02	Bread, cake, and related products, n.s.k., typically for establishments with less than 20 employees (see note)		(NA)	(X)	275.5	(NA)	(X)	253.6

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000"

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Sweet goods lead gains in average price per lb

WIDE VARIATIONS MARKED AVERAGE price-per-pound calculations for the principal products of the Bread, Cake and Related Products Industry in 1982 in comparison with 1977 averages. While the Census does not provide data for all producers, those establishments classified in the Bread, Cake and Related Products Industry accounted for 88% of the total poundage figures for all producers, according to the 1982 Census of Manufactures.

The following table shows average price compilations for principal product categories and individual products in 1982, 1977 and 1972, with per cent of change from the previous Census.

Average price per pound of product

	1982	1977	1972	1967	% gain 1982 over 1977	% gain 1977 over 1972	% gain 1972 over 1967
All bread	**$0.4422**	**$0.3217**	**$0.2150**	**$0.1846**	**37%**	**50%**	**16%**
White pan bread	0.4083	0.3001	0.2002	0.1734	36%	50%	15%
White hearth bread	0.4729	0.3506	0.2958	0.2158	35%	19%	37%
Wheat bread	0.4917	0.3688	0.2489	0.2158	33%	48%	15%
Rye bread	0.5444	0.4072	0.2768	0.2210	34%	47%	25%
Other variety	0.5585	0.4170	0.2941	0.2525	34%	42%	17%
All rolls, stuffing	**0.5450**	**0.4073**	**0.2651**	**0.2396**	**34%**	**54%**	**11%**
Hamburger, wiener	0.4879	0.3645	0.2441	0.2256	34%	49%	8%
Brown 'n serve	0.5792	0.4387	0.2919	0.2781	32%	50%	5%
English muffins	0.6389	0.4913	n.a.	n.a.	30%	...	...
Hearth rolls	0.5252	0.5853	n.a.	n.a.	-10%	...	...
Other rolls	0.5532	0.4780	n.a.	n.a.	15%	...	...
Stuffing, crumbs	0.6306	0.5590	0.3024	0.2086	13%	85%	45%
Sweet yeast goods	**1.0942**	**0.6778**	**0.4719**	**0.3834**	**61%**	**44%**	**23%**
Yeast-raised donuts	1.1575	0.7640	0.3938	0.3682	52%	94%	7%
Sweet rolls, coffee cake	1.0467	0.6456	0.5112	0.3939	62%	26%	30%
Soft cakes	**1.0232**	**0.7759**	**0.4926**	**0.3894**	**32%**	**58%**	**27%**
Snack cakes	0.9565	0.7461	n.a.	n.a.	28%	...	...
Fruit cakes	2.2349	1.3363	n.a.	n.a.	97%	...	...
Pies	**0.8458**	**0.5966**	**0.3903**	**0.3365**	**42%**	**53%**	**16%**
Snack pies	0.8924	0.5472	n.a.	n.a.	63%	...	...
All other pies	0.7728	0.6700	n.a.	n.a.	15%	...	...
Donuts, cake-type	**1.0470**	**0.6809**	**0.4610**	**0.3747**	**54%**	**48%**	**23%**

Average price of all bread in 1982 was 44.22c per lb, up 37% from 1977. Leading the upturns was white pan bread, with an average price of 40.83c per lb, up 36% from 1977. That was below the 50% rise noted in 1977 but well above the 15% gain in 1972.

There were some surprising results in compilation of average prices in the coffee cake was up 62%. Average price of cake-type donuts in 1982 was $1.0470 per lb, up 54% from 1977.

bread-type rolls categry, which includes brown 'n serve rolls, stuffing and bread crumbs. While average price of the category was up 34% in 1982, there were wide variations. Average price of hamburger and wiener buns in 1982 was up 34% from 1977, but average price for hearth rolls was down 10%. And average price of stuffing and bread crumbs was up only 13% from 1977, in sharp contrast to the previous Census period, when average pices rose 85%.

Distribution accounts for 22% of employes

OF THE 170,700 PERSONS EMPLOYED in the Bread, Cake and Related Products Industry in 1982, a total of 88,900 worked in production, 37,100 in distribution of products, and 44,700 were in other positions, according to the 1982 Census of Manufactures.

The following table shows employment numbers, in thousands, and payroll, in millions of dollars, with per cent of totals, for the Bread, Cake and Related Products Industry in 1982.

	Number of Employes (thousands)	Per cent of total	Payroll (millions)	Per cent of total
Production	88.9	52	$1,520.1	47
Transportation	37.1	22	954.8	29
Other	44.7	26	774.7	24
Totals	**170.7**	**100**	**$3,249.6**	**100**

The 37,100 employes in transportation of products in 1982 was equal to 22% of all employes in the Bread, Cake and Related Products Industry, the same ly, that number was up from 40,600 in 1977.

The Bureau of the Census noted that its measurement of transportation empioyes included those "engaged in delivery of products sold by that establishment and utilized as a separate work force."

Employes engaged in transportation of products, according to the Census, represented a payroll of $954.8 million,

on product prices either at the wholesale or retail level, an estimate of the wholesale price can be obtained by dividing the total value of shipments of a product by total production of that product in pounds.

On this basis, average prices for sweet goods in 1982 led percentage upturns from 1977 averages, followed by dustry as well as in other industries.

As a product grouping, sweet yeast goods in 1982 averaged $1.0942 per lb of baked weight, up 61% from 67.78c in 1977. That rise is well above a 44% gain in 1972 over 1967. Within the sweet yeast goods group, average price of yeast-raised donuts was up 52% while the average price of sweet rolls and percentage as in 1977, when there were 40,000 employes in transportation and industry employment totaled 178,000. The 1977 Census was the first to measure employment of distribution personnel in baking.

The 44,700 employes in other positions in 1982 included administrative, sales and clerical personnel. Interesting- up 49% from $642.5 million in 1977. Transportation employes in 1982 represented 29% of total industry payroll, up from 28% in 1977. Production employes accounted for 47% of total industry payroll, down from 49% in 1977, while other employes accounted for 24% of the total payroll, up from 23% in 1977.

Shifts in state product shipment rank continue

CONSIDERABLE REALIGNMENTS IN state leadership in value of baked foods product shipments are reflected in the 1982 Census of Manufactures for the Bread, Cake and Related Products Industry. The Census shows that California, Texas, New York, Pennsylvania, Illinois and Ohio continued to be the leaders in value of shipments by all producers, those classified in the Bread, Cake and Related Products Industry as well as in other industries. But wide variations occurred in changes, primarily increases, from 1977 aggregates.

In white, wheat and rye bread, California retained its No. 1 ranking with value of shipments of $526.7 million in 1982, up 41% from $374.7 million in 1977. While California's gain of 41% exceeded the national average of 34%, its share of the total value of shipments for white, wheat and rye bread remained constant at 11%.

Texas jumps into second place

Texas, which ranked fifth among the leading states in white, wheat and rye bread shipments in 1977, jumped to second place in 1982 on the strength of a 49% rise in value of shipments, the sharpest percentage increase among the major producing states.

Plants in Texas in 1982 shipped white, wheat and rye bread valued at $304.2 million, compared with $204.7 million in 1977.

New York, which ranked second in value of its bread shipments in 1977, slipped to third behind Texas.

Plants in New York in 1982 shipped white, wheat and rye bread valued at $286.6 million, up 25% from $230.1 million in 1977.

Neighboring Pennsylvania fell from third place in 1977 to fourth in 1982. Its value of bread shipments in 1982 was $282.6 million, up 25% from $225.6 million in 1977. Thus, the gain in value of shipments in both New York and Pennsylvania was below the national average of 34%.

Illinois, which ranked fourth in 1977 value of bread shipments, fell to fifth in 1982 with that state's value of shipments rising only 12%. Plants in Illinois in 1982 shipped bread valued at $231.2 million, compared with $206.7 million in 1977.

Sharper gains in several states

Several states, particularly in the South and Southeast, posted gains in value of white, wheat and rye bread shipments that were well above the national average. Included were Massachusetts, up 66% to $122.4 million; North Carolina, up 44% to $140.3 million; Georgia, up 52% to $113.5 million; Florida, up 55% to $187.8 million; Alabama, up 88% to $101.7 million, and Virginia, up 71% to $99.3 million. In the West, the sharpest gains were recorded by Colorado, 70%; Arizona, 79%, and Washington, 74%.

Of the 37 states for which value of white, wheat and rye bread shipments is provided in the 1982 Census, only two — Michigan and Maryland — posted declines. Value of shipments in Michigan in 1982 was $131.6 million, down from $136.2 million in 1977. In Maryland, value of bread shipments totaled $87.4 million in 1982, off from $91.2 million in 1977.

Shuffling in bread-type rolls

Some shuffling of state rankings also was noted in bread-type rolls, baking's second-largest product category in terms of poundage and dollar value. California retained its first-place ranking with a gain of 60% in value of bread-type roll shipments, well above the national average gain of 45%, which in turn was the greatest for any major product grouping in baking.

Value of bread-type roll shipments from California plants in 1982 totaled $306.8 million, up from $191.7 million in 1977. Significance of that gain is also reflected in the finding that value of bread-type roll shipments by the nation's leading bread and roll producer in 1982 was 58% of the value of its bread shipments, compared with 51% in 1977.

Ohio, second-ranking bread-type roll shipper in 1977, slipped to fifth in 1982 with plants in that state posting only a 9% gain in value of shipments, from $115.5 million in 1977 to $126 million in 1982. Replacing Ohio in second place was Pennsylvania. Plants in that state recorded bread-type roll shipments in 1982 valued at $155.2 million, up 45% from $106.9 million in 1977, when the state ranked third.

Illinois, which ranked fifth in value of bread-type roll shipments in 1977, moved up to third in 1982, on the strength of a 58% gain in value of shipments. Bread-type roll shipments from Illinois plants in 1982 were valued at $151.8 million, compared with $95.7 million in 1977.

New Jersey remained in fourth place in bread-type roll shipments. Value of shipments amounted to $139.9 million in 1982, up 34% from $104.1 million five years earlier. At the same time, this gain was 11 percentage points below the national average.

New York ranked sixth in 1982 value

of shipments of bread-type rolls and paced all states in percentage gain from 1977 totals. Value of shipments by New York plants in 1982 totaled $125.1 million, up 106% from $60.7 million in 1977.

Only two fail to show gains

Of the 35 states for which value of shipment figures are provided in bread-type rolls, only Wisconsin and West Virginia failed to show increases over 1977. Value of bread-type roll shipments from Wisconsin plants in 1982 totaled $39 million, down from $41.2 million in 1977. Value of shipments from West Virginia aggregated $17 million in 1982, down from $18.6 million in 1977.

The Bureau of the Census practice of withholding state data to avoid disclosing information on individual companies makes state-by-state comparisons difficult for other product categories. In the sweet yeast goods category, for example, data are provided for both 1982 and 1977 for only 16 states.

California leads sweet goods

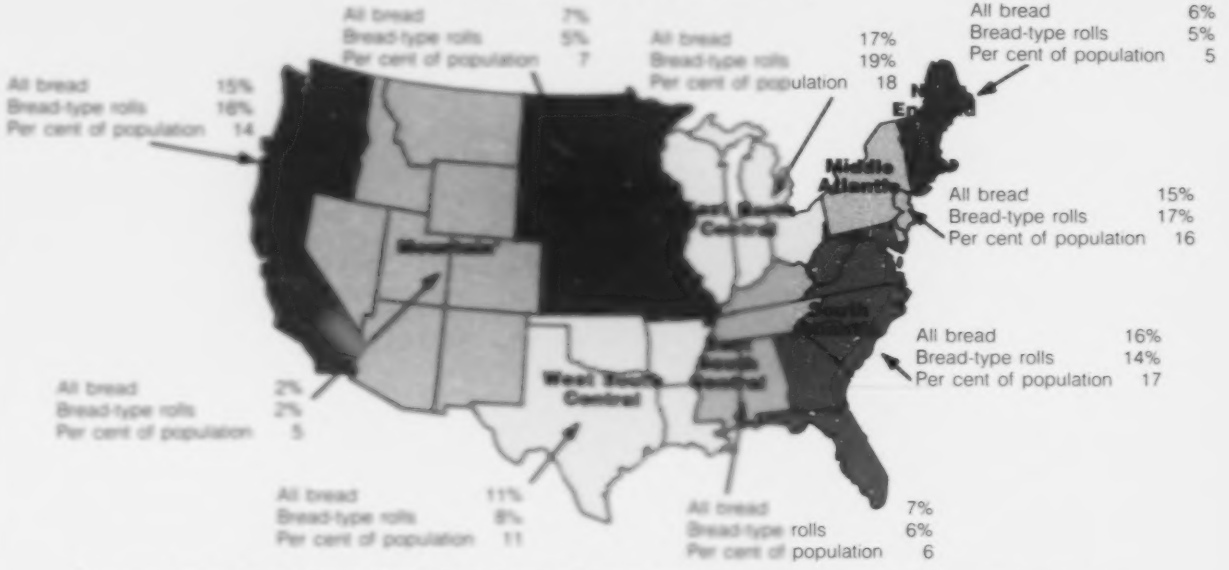
According to the limited data, California led in value of shipments of sweet yeast goods. Value of these shipments in 1982 was $91.1 million, up 40% from $65.3 million in 1977, when the state ranked second.

Data are not provided for 1982 sweet yeast goods shipments in New York, which ranked first in the 1977 Census with shipments valued at $85.9 million. Following California in value of sweet yeast goods shipments in 1982 were Illinois, $54 million, up 17%; Texas, $46.6 million, down 7%; Tennessee, $33.9 million, up 12%; and Ohio, $28.7 million, down 5%.

For all states, value of shipments of sweet yeast goods in 1982 was up 19%.

Bread, roll shipments by areas

(per cent of total U.S. value, and population comparison.)



** Percentage figures do not include undisclosed data for six states in Mountain area: Montana, Idaho, Wyoming, New Mexico, Utah and Nevada.*

(Population percentages based on Bureau of the Census estimates of resident population, including Armed Forces residing in each state, as of July 1, 1983.)

New York tops soft cakes

In soft cakes, New York led with 1982 value of shipments of $148.1 million, up 43% from $103.6 million in 1977. California was second with shipments valued at $109.7 million, up 17% from 1977. Tennessee was in third place with soft cake shipments in 1982 valued at $107.1 million, up 75% from $61.1 million in 1977. New Jersey was fourth with shipments in 1982 valued at $100.2 million, up 53% from $65.5 million in 1977. Illinois ranked fifth with shipments valued at $69.2 million, up 22% from $56.5 million in 1977. Texas was close behind Illinois with shipments valued at $68.2 million, up 66% from $41.1 million in 1977. For all states, value of soft cake shipments in 1982 was up 30% from 1977.

Fresh pie lead by Pennsylvania

Pennsylvania continued to lead in shipments of non-frozen pies, fruit and custard, valued at $52 million in 1982, up only 10% from $47.1 million in 1977. California was second with 1982 shipments valued at $40.9 million, up 54% from $26.3 million. For all states, the value of shipments of unfrozen pies in 1982 was up 33% over 1977. In contrast, the value of shipments of frozen pies in 1982, according to the Census of Manufactures for the Frozen Specialties Industry, was down 5% from 1977.

California again led in cake-type donuts, with 1982 shipments valued at $65.8 million, up 52%. That percentage rise compares to a 93% gain as the national average.

Regional forces reaffirmed

Affirmation of the regionality of

Value of shipments by selected states

	White, wheat and rye bread		Rolls bread type		Sweet yeast goods		Soft cakes		Pies, fruit and custard		Cake type donuts	
	1982	1977	1982	1977	1982	1977	1982	1977	1982	1977	1982	1977
	(Millions of dollars)											
U.S. Total	$4,698.1	$3,500.7	$2,437.7	$1,679.6	$760.7	$640.4	$1,231.2	$969.9	$394.5	$297.1	$465.2	$241.1
Northeast Region												
New England Div.												
Massachusetts	122.4	73.8	47.5	28.5	—	5.5	39.5	23.0	—	—	18.2	EE
Connecticut	145.7	107.8	83.8	60.4	—	4.5	12.0	10.5	—	—	—	—
Middle Atlantic Div.												
New York	286.6	230.1	125.1	60.7	—	85.9	148.1	103.6	—	17.8	—	9.2
New Jersey	141.6	93.9	139.9	104.1	—	—	100.2	65.5	—	—	—	10.9
Pennsylvania	282.6	225.6	155.2	106.9	20.3	25.8	—	97.3	52.0	47.1	—	3.4
Midwest Region												
East North Central Div.												
Ohio	229.9	189.0	126.0	115.5	28.7	30.1	42.7	75.8	36.8	21.8	23.1	22.9
Indiana	100.0	81.3	97.2	57.9	26.2	18.1	12.7	6.6	—	—	19.7	6.6
Illinois	231.2	206.7	151.8	95.7	54.0	47.5	69.2	56.5	13.3	12.6	27.2	5.5
Michigan	131.6	136.2	50.9	50.1	8.8	22.9	26.7	37.2	—	10.8	12.6	6.8
Wisconsin	83.5	70.4	39.0	41.2	15.0	10.6	8.0	4.3	4.1	AA	10.0	5.5
West North Central Div.												
Minnesota	66.4	48.4	23.3	19.6	12.0	6.0	16.0	CC	—	4.8	—	—
Iowa	66.4	49.1	18.7	17.6	3.0	3.2	—	—	—	—	—	4.8
Missouri	134.5	102.1	51.1	39.7	12.6	13.4	—	—	7.9	CC	11.2	6.8
Nebraska	33.1	23.2	28.0	18.1	4.1	BB	—	—	—	—	—	—
Kansas	37.9	23.0	10.5	10.2	—	—	—	—	—	—	—	—
South Region												
South Atlantic Div.												
Maryland	87.4	91.2	66.7	24.2	16.6	11.4	13.7	13.8	10.3	10.2	—	5.2
Virginia	99.3	58.1	40.6	29.7	21.1	14.9	—	6.4	—	—	3.4	3.8
West Virginia	52.1	47.3	17.0	18.6	—	—	—	—	—	—	—	—
N. Carolina	140.3	97.4	78.0	58.0	20.4	19.0	30.2	26.0	6.5	13.9	—	—
S. Carolina	61.8	38.2	33.6	21.3	—	—	—	—	—	—	—	—
Georgia	113.5	74.8	38.7	27.0	—	37.3	59.2	48.1	—	—	—	13.1
Florida	187.8	120.6	72.2	51.4	24.9	16.7	24.9	EE	—	—	—	—
East South Central Div.												
Kentucky	53.1	40.3	—	14.1	—	—	—	—	—	—	—	—
Tennessee	119.6	106.1	54.8	39.4	33.9	30.2	107.1	61.1	7.6	4.7	—	—
Alabama	101.7	54.2	68.6	41.0	—	14.2	—	—	—	—	—	—
Mississippi	33.1	24.6	16.6	CC	—	—	—	—	—	—	—	—
West South Central Div.												
Arkansas	36.9	27.5	37.3	25.2	—	—	—	—	—	—	—	—
Louisiana	100.4	72.8	29.8	27.8	6.7	2.9	—	—	—	—	—	—
Oklahoma	54.5	40.0	22.2	15.4	—	—	—	—	—	—	—	—
Texas	304.2	204.7	112.0	86.5	46.6	50.5	68.2	41.1	26.1	10.3	27.1	10.1
West Region												
Mountain Division												
Colorado	65.5	38.6	24.7	13.2	—	9.6	—	10.1	—	4.1	—	7.5
Arizona	43.9	24.5	23.8	9.4	—	—	—	—	—	—	—	—
Utah	35.7	21.9	—	6.8	—	—	—	—	—	—	—	2.4
Pacific Division												
Washington	93.6	53.8	27.6	25.1	—	17.1	—	6.4	—	—	—	7.0
Oregon	64.3	55.0	34.4	20.7	—	4.4	—	—	—	—	—	—
California	526.7	374.7	306.8	191.7	91.1	65.3	109.7	93.7	40.9	26.5	65.8	43.4
Hawaii	36.8	EE	10.9	5.0	—	—	—	—	—	—	—	—

(For 1977, value ranges substitute for actual figures withheld to avoid disclosing data for individual companies: AA-less than $2 million; BB-$2 million to $4.9 million; CC-$5 million to $9.9 million; EE-$10 million to $19.9 million.

wholesale baking's production and distribution operations is provided by grouping the 1982 state value of shipment totals into geographic divisions and comparing those area figures against 1983 population statistics of the Bureau of the Census.

While these aggregates are not strictly comparable in all cases because shipment data are withheld for some states, this shortcoming is minimized in the case of white, wheat and rye bread, where the value of shipment data detailed for 37 states account for 96% of the U.S. total. In bread-type rolls, the data for 35 states account for 93% of the U.S. total.

Close alignment in most areas

In most geographic areas, the percentages of total value of shipments for bread and for rolls are within one or two percentage points of the share of U.S. resident population for that part of the country. (See map above). For instance, the New England division, which includes the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut — accounted for 5% of the U.S. resident population on July 1, 1983, and for 6% of the value of bread shipments and 5% of the roll shipments. Similarly, the Pacific coast division, which includes the states of Washington, Oregon, California, Alaska and Hawaii, accounted for 14% of U.S. resident population, 15% of total value of bread shipments and 16% of total value of roll shipments.

The widest variation appears to be in the Mountain division — with 5% of the population but only 2% of both bread and roll shipments. At the same time, that discrepancy may be explained by the absence of value of shipment data for five of the eight states in that area.

Capital spending up 36%; larger share for plants

EXPENDITURES ON NEW PLANT AND equipment by the 2,305 establishments classified in the Bread, Cake and Related Products Industry in 1982 totaled $382.4 million, up 36% from $280.4 million in 1977. Standing out in the capital expenditures for 1982 is a 76% jump in spending on new structures in baking. The overall rise of 36% in capital expenditures from 1977 compares with a 64% gain in 1977 spending from 1972 levels. (Dollar figures are at prices current for the year specified and are not adjusted for inflation.)

The 1982 capital spending of $382.4 million for new plant and equipment was more than double the 1972 aggregate of $170.6 million and compares with $127.9 million in 1967, $95.3 million in 1963 and $104.1 million in 1958.

Five-year combined aggregate

Combining the 1982 capital expenditures for new plant and equipment of $382.4 million and Annual Survey of Manufactures estimates for capital spending in the Bread, Cake and Related Products Industry provides an aggregate of $1,553.5 million in the five-year period ended in 1982. A comparable aggregate for the five-year period ended in 1977 is not available as the Annual Survey of Manufactures in that period did not estimate capital spending.

According to the Annual Survey of Manufactures, new capital expenditures by the Bread, Cake and Related Products Industry totaled $324.3 million in 1978, $290.4 million in 1979, $288.6 million in 1980 and $267.8 million in 1981.

In addition to the expenditures for dustry in 1982, 91% was for new plant and equipment, while 9% was for used plant and equipment. That ratio is basically unchanged from 92% for new plant and equipment and 8% for used in 1977, and compares with 96% and 4%, respectively, in 1972.

New structures cost $92 million

The spending for new plant and equipment in 1982 included $92.1 million for new structures, up 76% from $52.2 million in 1977, and $290.4 million for new machinery and equipment, up 27% from $228.2 million in 1977. That spending for new structures rose at a sharper rate than spending for new machinery and equipment reflects the relatively large number of new plants built in the later period.

The $92.1 million aggregate for new plant construction was 24% of the total "new" expenditures in 1982, up from 19% in 1977 and compared with 21% in 1972.

Wholesale bakeries accounted for capital expenditures of $390.8 million in 1982, or 93% of the Bread, Cake and Related Products Industry aggregate. That share is up two percentage points from 1977 and contrasts with with a share of only 82% in 1972.

The 1982 spending by wholesale bakeries compares with $277.3 million in 1977, or a gain of 41%, which is slightly above the 39% rise in spending by the entire Bread, Cake and Related Products Industry.

Capital expenditures by Grocery Chain Bakeries climbed in the 1977-82 period after declining in the previous five-year period. Companies in this segthe 1972 aggregate of $27.6 million. Grocery Chain Bakeries accounted for 6% of total spending in the Bread, Cake and Related Products Industry, unchanged from 1977 but well below the 16% share in 1972. Retail Multi-Outlet Bakeries spent $2.9 million for new and used plant and equipment in 1982, down sharply from $9.7 million in 1977 and compared with $4.3 million in 1972.

Larger-plant spending share up

Concentration of capital expenditures among the largest-sized plants increased in the 1977-82 period after lessening in the previous five-year Census period. The 501 plants in the Bread, Cake and Related Products Industry with more than 100 employes accounted for new capital expenditures in 1982 of $329.2 million, or 86% of the industry's total. In the 1977 Census, the 556 plants in this size category accounted for outlays of $211.3 million, or 75% of total industry new expenditures. In 1972, the 613 plants in the 100-or-more employe category spent $136.1 million, or 80% of the aggregate.

The share of new capital expenditures by plants in the three other principal size categories declined. Plants with 50 to 99 employes accounted for 8% of total industry spending, down from 13% in 1977. Plants with 20 to 49 employes accounted for 4% of new capital spending in 1982, down from 6% in 1977, while plants with fewer than 20 employes accounted for 2% of new capital expenditures, down from 6% in 1977.

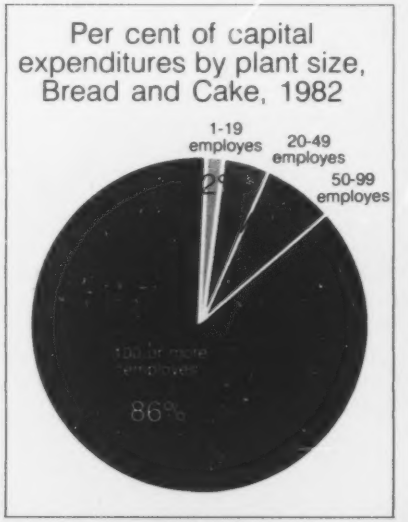
Wholesale Bakeries share larger

Within Wholesale Bakeries group, of the number of wholesale establishments, aggregated $311.3 million, or 88%, of Wholesale Bakeries' new capital spending.

The 1,215 plants with fewer than 20 employes spent $5.8 million in 1982, only 2% of the category's total in that year. Plants with 20 to 49 employes accounted for capital spending of $13.3 million, or 4% of the total, while plants with 50 to 99 employes had capital expenditures of $23.6 million, or 7% of the Wholesale Bakeries total.

Bread plants spend 65% of outlay

In detailing capital expenditures by plants according to their degree of specialization in products primary to the industry, the Census shows that the 495 plants with bread as a primary product accounted for capital outlays of $248.4



new plant and equipment, the Bread, Cake and Related Products Industry spent $38.4 million for used plant and equipment in 1982. That compares with $23.4 million in 1977, a gain of 64%. Spending on used equipment in 1972 totaled $6.9 million.

Total expenditures by the Bread, Cake and Related Products Industry for both new and used plant and equipment in 1982 was $420.8 million, up 39% from $303.8 million in 1977 and compared with $177.5 million in 1972.

New plant, equipment at 91%

Of total capital expenditures by the Bread, Cake and Related Products Industry spent $26.9 million for new and used plant and equipment in 1982, up 60% from $16.8 million in 1977. The latter total was off 48% from

Capital expenditures for 1982 and 1977

	Bread, Cake and Related Products		Wholesale bakeries		Grocery chain		Retail multi-outlet	
	1982	1977	1982	1977	1982	1977	1982	1977
	--(millions of dollars)--							
New plant, equipment	$382.4	$280.4	$354.0	$256.7	$25.8	$14.2	$2.6	$9.5
New structures	92.1	52.2	86.3	48.6	5.1	2.8	0.6	0.8
New machinery, equip	290.4	228.2	267.7	208.1	20.7	11.4	2.0	8.7
Used plant, equipment	38.4	23.4	36.9	20.7	1.1	2.6	0.3	0.2
Total spending	**$420.8**	**$303.8**	**$390.8**	**$277.3**	**$26.9**	**$16.8**	**$2.9**	**$9.7**

plants with 100 or more employes accounted for an even larger share of new capital expenditures. Spending by those 440 plants, representing only 20% million, or 65% of the industry total.

The following shows new capital expenditures in 1982, in millions of dollars, for plants by primary products, with per cent of new expenditures in the Bread, Cake and Related Products Industry:

Primary product	Number of plants	Capital expenditures	Per cent of total
Bread	495	$248.4	65.0%
Rolls	152	54.3	14.0%
Sweet goods	99	20.4	5.0%
Soft cakes	64	30.8	8.0%
Pies	33	3.4	1.0%
Pastries	8	1.0	0.2%
Cake donuts	10	0.6	0.1%

New detail on ingredient usage; flour down 4%

EXPANDED DATA ON THE USE OF ingredients and other materials in wholesale baking are provided in the 1982 Census of Manufactures for the Bread, Cake and Related Products Industry. Baking ingredient usages detailed for the first time are cookie and cracker-type flour, wheat gluten, cake-type prepared mixes, corn syrup and high fructose corn syrup, dry whey and dairy blend milk replacers, compressed yeast and emulsifiers. The 1982 study also provides separate figures for the first time on cost of flexible packaging materials.

Usage valued at $3.7 billion

According to the Census, the Bread, Cake and Related Products Industry in producing its products in 1982 used ingredients, materials, containers and other supplies with a value of $3,729.8 million, up 32% from $2,829.1 million in 1977. Price increases, as well as changing product mix, accounted for most of the gain as aggregate poundage production by plants in the industry was up less than 3% in the period.

Delivered cost of ingredients and other materials used in the industry in 1977 was 45% above the 1972 total, which in turn was only 6% above the 1967 figure.

The importance of allowing for inflation in reviewing the Census data is particularly apparent in the statistics on materials, ingredients, containers and supplies used. A calculation of unit costs, for example, shows that white bread-type flour in 1982 averaged $11.31 per cwt, compared with $7.55 per cwt in 1977.

Flour cost third of aggregate

According to delivered cost figures, total flour cost in the Bread, Cake and Related Products Industry in 1982 was $1,177.4 million. This was 32% of the cost of all materials and ingredients used by the Bread, Cake and Related Products Industry. In 1977, total delivered flour cost was $822.9 million, or 29% of the aggregate. In 1972, the flour cost amounted to $630.1 million, which was 32% of the total.

Packaging materials at 13%

Ranking second to flour as baking's largest purchasing cost in 1982 was the packaging and container category. Total cost of flexible packaging materials and paperboard containers, boxes and corrugated paperboard in 1982 was $478 million, or 13% of the total cost of all materials and ingredients. This category in 1977 represented a cost of $369.6 million, also 13% of the aggregate.

Total cost of sweeteners used by the Bread, Cake and Related Products Industry in 1982 was $331.6 million, or 9% of the total cost of all ingredients and materials. That compares with $232.1 million, or 8% of the aggregate, in 1977. Cost of fats and oils in 1982 totaled $231.5 million, or 6% of the aggregate, compared with $218 million in 1977, which was 8% of that year's total cost of ingredients and materials.

Prepared flour mixes, with a total cost of $122.9 million, represented 3% of total costs, compared with $101.5 million, or 4%, in 1977.

In 1972, the Bread, Cake and Related Products Industry spent $68.7 million on mixes, which represented 4% of total material and ingredient costs.

Less flour, mixes; more product

While the final Census report includes some relatively minor changes in ingredient usage and cost numbers from the preliminary report issued in the fall of 1984, no change was recorded in flour or bakery mixes. Thus, the final report reaffirms the preliminary report's indication that the Bread, Cake and Related Products Industry in 1982 used 4% less wheat flour and 9% less prepared flour mixes than in 1977. Those decreases contrast with the Census finding that poundage production of bread, cake and roll products in 1982 was 2.7% larger than in 1977.

Among explanations offered for the variation in flour usage and actual pro-

duction is that the ingredient use figure is for only those establishments classified in the Bread, Cake and Related Products Industry, while the production totals include shipments of bread and cake products by plants classified in other industries as well. At the same time, it was noted that the Bread, Cake and Related Products Industry accounted for 98% of the value of shipments of products considered primary to that industry.

Effect of changing product mix

Changing product mix — particularly increasing production of wheat bread, multi-grain loaves, buns and rolls and decreasing white bread production — also affects flour usage, with many of the bread and roll products that are on the upswing using more non-flour ingredients and/or higher water levels in formulas than white bread.

First estimate for wheat gluten

Increasing wheat gluten use in baked foods production also affects flour consumption. The 1982 Census is the first to provide separate usage data on wheat gluten, placing consumption by the industry at 110.5 million lbs. Some wheat gluten suppliers have suggested that the Census figure is too high and that baking's annual use of wheat gluten is in the range of 85 million to 90 million lbs.

In addition, it should be noted that the 1982 Census figure on use of white bread-type flour, which represents 87% of all flour used in the Bread, Cake and Related Products Industry, is partially based on estimates by the Bureau of the Census. The 1982 re- Census report stated that "for some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data."

Up to 19% of the total quantity figure for white bread-type flour was estimated in this manner, the Census Bureau said.

According to the Census, the Bread, Cake and Related Products Industry in 1982 used 10,006.2 million lbs, or 100,062,000 cwts, of flour, down 4% from 104,711,000 cwts in 1977 and also slightly less than 100,862,000 cwts in 1972. Flour usage by the industry in 1967 totaled 102,130,000 cwts. If the 1982 figure is accurate, flour usage in the Bread, Cake and Related Products Industry in that year was the smallest since 1963, when usage totaled 95,790,000 cwts.

Cake-type flour use drops 29%

The 1982 flour usage includes 86,927,000 cwts of white bread-type flour, down 7% from 93,439,000 cwts in 1977, and 3,485,000 cwts of cake-type flour, down a striking 29% from 4,878,000 cwts in 1977. The 1977 Census was the first to provide separate figures for white bread-type flour and cake-type flour. Broken out for the first time in the 1982 Census is use of cookie and cracker-type flour, placed at 501,000 cwts.

Usage of "other wheat flour, including whole wheat, cracked wheat, and clear flour but excluding prepared mixes," aggregated 8,044,000 cwts in 1982, according to the Census.

Mix usage at 3.9 million cwts

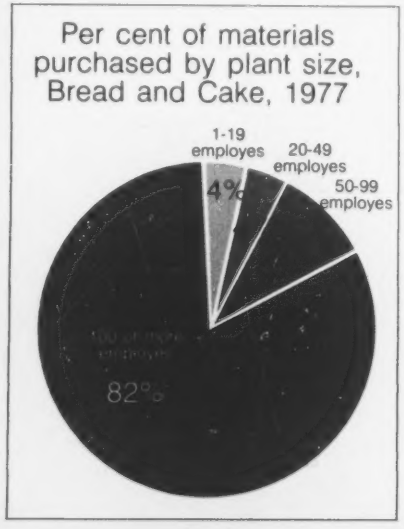
Use of prepared mixes by the industry in 1982 totaled 3,934,000 cwts, off 9% from 4,301,000 cwts in 1977 and compared with 5,192,000 cwts in 1972. Mix usage in 1967 and 1963 totaled 6,426,000 cwts and 4,378,000 cwts, respectively.

Mix usage in 1982 included 2,401,000 cwts of cake and yeast-type donut mixes, down 9% from 2,633,000 cwts in 1977, and 635,000 cwts of bread-type mixes, including franchise mixes, up 6% from 598,000 cwts in 1977.

The Census for the first time provides a separate figure for cake-type mixes, placing 1982 usage in the Bread, Cake and Related Products Industry at 110,000 cwts. Use of "other prepared mixes, including sweet goods," totaled 788,000 cwts.

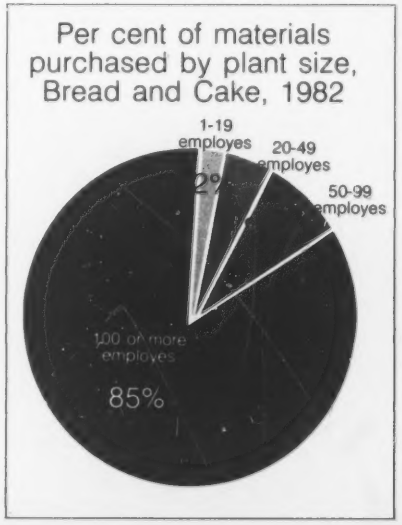
Added use of sweeeteners

Use of sweeteners by the Bread, Cake and Related Products Industry continued to increase, according to the Census. It shows usage in 1982 of 1,856 million lbs, up 9% from 1,679.9 million lbs in 1977 and compared with 1,505.8 million lbs in 1972. Sweetener usage has increased steadily since 1963, when



The following table shows usage of major ingredients — wheat flour, prepared mixes, shortening and sweeteners — by the Bread, Cake and Related Products Industry for 1982 and previous Census years:

	Wheat flour	Prepared mixes	Shortening	Sweeteners
		—(million lbs)—		
1982	10,006.2	393.4	473.3	1,856.0
1977	10,471.1	430.1	467.2	1,679.9
1972	10,086.2	519.2	482.3	1,505.8
1967	10,213.0	642.6	397.4	1,386.1
1963	9,579.0	437.8	306.9	1,296.2
1958	9,165.5	n.a.	302.5	1,335.7
1954	8,656.1	n.a.	253.5	1,146.9



Ingredients, materials consumed

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry.

1982 material code	Material		1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	Materials, ingredients, containers, and supplies		(X)	3 729.8	(X)	2 828.1
	Wheat flour, except prepared flour mixes:					
204117	White bread-type flour	mil lb	*8 692.7	984.0	9 343.9	705.9
204116	Cake-type flour	do	348.5	38.7	487.8	36.1
204111	Cookie and cracker-type flour	do	50.1	4.6		
204112	Wheat gluten	do	110.5	40.0	639.4	78.9
204114	Other wheat flour, including whole wheat, cracked wheat, and clear flour but excluding prepared mixes	do	*804.4	110.1		
	Prepared mixes:					
204151	Doughnut, cake and yeast types	do	240.1	75.7	263.3	63.8
204152	Bread-type, including franchise mixes	do	63.5	18.7	59.8	18.5
204153	Cake-type	do	11.0	4.9	*107.0	19.2
204154	Other prepared mixes, including sweet goods	do	78.8	23.6		
	Sweeteners:					
206011	Sugar (cane and beet) in terms of sugar solids	1,000 s tons	395.8	174.8	473.5	146.1
204606	Glucose syrup (corn syrup) (conventional or regular) in terms of solids	mil lb	313.8	47.1		
204604	High fructose corn syrup in terms of solids	do	618.2	70.7	732.9	86.0
200611	Other natural and artificial sweeteners, including dextrose, honey, molasses, blends of corn sweeteners and sugar, etc., in terms of solids	do	132.4	39.0		
	Fats and oils, including frying oils:					
207011	100-percent vegetable shortening	do	106.1	32.2	332.9	104.8
207012	Shortening, animal and blends of animal and vegetable	do	*367.2	113.0	134.3	39.0
201151	Lard	do	77.1	20.4	123.5	31.3
207014	Other fats and oils (cooking oils, butter, margarine and puff paste, etc.)	do	155.6	65.9	121.3	42.9
	Milk and milk replacers:					
202311	Dry milks	do	(S)	34.1	162.7	38.9
202312	Dry whey (sweet and acid)	do	8.7	1.9	(X)	(*)
202303	Blends, soy/whey and others	do	**87.2	19.2	(X)	(*)
	Yeast:					
209941	Compressed	do	211.9	78.9	312.7	72.1
209943	Active dry	do	(S)	33.7		
201722	Liquid, dried, and frozen eggs (in terms of dry weight equivalent)	do	*79.3	50.6	94.1	49.0
209994	Emulsifers	do	(S)	7.8	(X)	(*)
206601	Chocolate (compounds, cocoa, chocolate liquor, etc.)	do	*99.3	51.9	(X)	54.1
190003	Flexible packaging materials[4]		(X)	302.4	(X)	(*)
265001	Paperboard containers, boxes, and corrugated paperboard[4]		(X)	175.6	(X)	(*)
970099	All other materials, ingredients, containers, packaging materials, and supplies[4]		(X)	541.5	(X)	[3]798.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	568.8	(X)	444.1

1-For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10% of published figure: * 10 to 19% estimated; ** 20 to 29% estimated. If 30% or more is estimated, figure is replaced by (S).

2-Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

3-For 1977, materials codes 202312, 202303, 209994, 190003 and 265001 were combined with material code 970099.

4-For 1977, material code 970005, containers and wrapping materials, which has a delivered cost of $369.9 million, was combined with material code 970099 because it may not be directly comparable to the 1982 material codes 190003 and 265001.

the industry consumed 1,296.2 million lbs.

The 1982 sweetener total includes 395,800 tons, or 791.6 million lbs, of cane and beet sugar, down 16% from 473,500 tons, or 947 million lbs, in 1977. The industry's usage of cane and beet sugar in 1982 was only 53% of the 1972 total, which was 1,505.8 million lbs. The preliminary Census report had placed cane and beet sugar usage in 1982 at 367,100 tons.

The switch by many bakers from cane and beet sugar to corn-based sweeteners is reflected in the 1982 Census report showing a 45% increase in use of other sweeteners from 1977 levels. Use of corn syrup, high fructose corn syrup and other natural and artificial sweeteners, including blends of corn sweeteners and sugar, aggregated 1,064.4 million lbs in 1982, compared with 732.9 million lbs in 1977.

The 1982 Census is the first to provide separate usage figures for corn syrup (313.8 million lbs) and for high fructose corn syrup (618.2 million lbs). The remaining 132.4 million lbs of the 1,064.4-million-lb total for other sweeteners was in "other natural and artificial sweeteners, including dextrose, honey, molasses, blends of corn sweeteners and sugar."

Contraction in 100% vegetable

Changing ingredient use is also reflected in the 1982 Census figures for fats and oils, including frying oils. According to the Census, the Bread, Cake and Related Products Industry in 1982 used 106.1 million lbs of 100% vegetable shortening, down 68% from 332.9 million lbs in 1977, which was the first year that shortening consumption was detailed by types. In contrast to the

sharp decrease in use of 100% vegetable shortening, the industry in 1982 used 367.2 million lbs of animal shortening and blends of animal and vegetable shortening, a 173% increase from 134.3 million lbs in 1977. The 1982 figure for animal shortening and blends of animal and vegetable shortening is partially based on estimates of up to 19% of the published total.

Use of lard by the industry totaled 77.1 million lbs in 1982, down 38% from 123.5 million lbs in 1977 and 71% below 266.1 million lbs in 1972.

New data on milk replacers

In the milk and milk replacers category, the industry in 1982 used 8.7 million lbs of dry whey, sweet and acid, and 87.2 million lbs of soy/whey and other blends. Both of these ingredients are shown for the first time in the 1982 Census. The Census withheld usage data on dry milk, noting that more than 30% of the total was based on estimates. Usage of dry milk by the industry in 1977 and 1972 totaled 162.7 million lbs and 184.9 million lbs, respectively.

The 1982 report also withheld publication of usage figures on active dry yeast and emulsifiers for the same reason. Both ingredients, along with compressed yeast, are listed separately in the 1982 Census for the first time. Usage of compressed yeast in 1982 was placed at 211.9 million lbs. In 1977, the industry used 312.7 million lbs of yeast, both compressed and active dry types.

Flexible packaging cost listed

In separating flexible packaging materials from the previous "containers and wrapping materials" category, the 1982 Census for wholesale baking placed cost of flexible packaging used by the industry at $302.4 million. Cost of paperboard containers, boxes and corrugated paperboard was set at $175.6 million. The aggregate, $478 million, is up 29% from $369.6 million in 1977.

Wholesale share hits 89%

Total cost of materials and ingredients used by Wholesale Bakeries in 1982 was $2,505.5 million, or 89% of the total for the Bread, Cake and Related Products Industry. Total cost of materials and ingredients used by Grocery Chain Bakeries was $273.7 million, or 10% of the industry total. Both percentages are unchanged from 1977.

Baking plants with 100 or more employes accounted for 85% of all materials and ingredients purchased in 1982, up from 82% in 1977. Shares for all other plant groupings by employe size decreased. Plants with 50 to 99 employes accounted for 8% of total purchases in 1982, down from 10% in 1977. Those plants with 20 to 49 employes accounted for 5% of all purchases, down from 4% in 1977, and plants with fewer than 20 employes represented 2% of total industry purchases, compared with 4% in 1977.

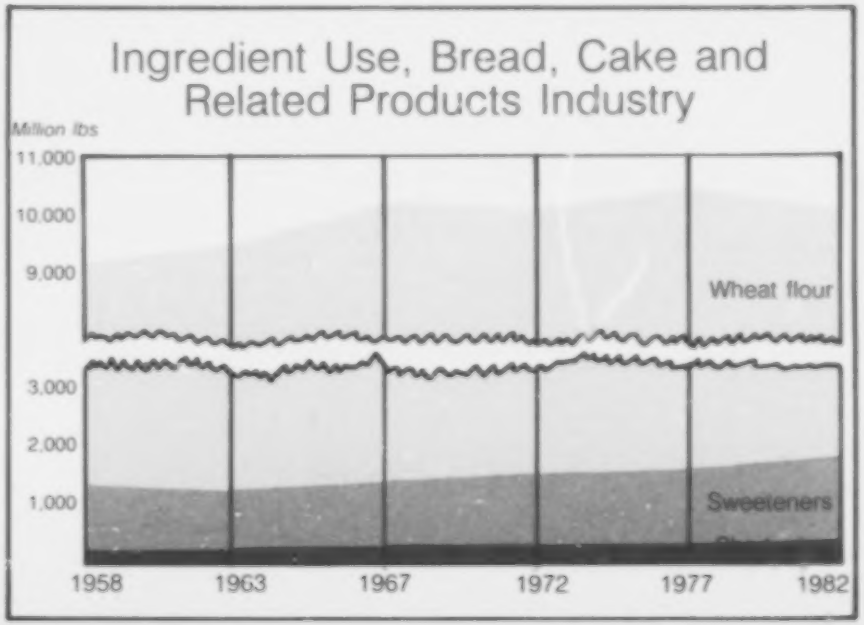
The $3,729.8-million cost for materials, ingredients, containers and supplies used by the Bread, Cake and Related Products Industry in 1982 represented 71% of the total cost of all materials and services used, which was $5,282.7 million. This total includes, in addition to materials and ingredients, the cost of resales, fuel and electricity, and contract work.

The following table breaks down the total cost of materials and services used by the Bread, Cake and Related Products Industry and Wholesale Bakeries in 1982, 1977 and 1972:

Cost of materials, 1972-82

(millions)

	Bread, Cake, Related Products			Wholesale Bakeries		
	1982	1977	1972	1982	1977	1972
Materials	$3,729.8	$2,829.1	$1,957.8	$3,307.8	$2,505.5	$1,640.4
Resales	1,286.1	938.9	605.8	1,142.8	828.3	559.1
Fuels consumed	132.7	77.3	31.0	116.9	68.7	26.3
Electricity	109.3	27.6	95.3	50.5	22.7	
Contract work	24.9	5.6	1.4	24.2	5.2	1.4
Total cost	**$5,282.7**	**$3,909.0**	**$2,623.6**	**$4,686.9**	**$3,458.2**	**$2,250.2**



Down as per cent of shipments

Cost of materials and ingredients consumed as a percentage of the industry's total value of shipments again declined in 1982. The following table shows the delivered cost of all materials and ingredients used by the industry for a series of Census years, as well as the percentage of total value of shipments these materials and ingredients represent:

	Materials consumed (millions)	Per cent of industry shipments
1982	$3,729.8	28.3%
1977	2,829.1	30.5%
1972	1,957.8	31.9%
1967	1,856.3	36.4%
1963	1,673.0	37.1%
1958	1,635.6	39.9%
1954	1,456.9	43.6%